United States Army Installation, Fort Greely

Fort Greely Alaska
Enhanced USE Lease (EUL) project

Environmental Assessment
for the Construction of a
Primary Care Medical and Lodging Facility
and Recreational Vehicle Park

12 October 2006

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LIST OF ACRONYMS

AAQS	Ambient Air Quality Standards
ADOL	Alaska Department of Labor
AR	Army Regulation
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADOT	Alaska Department of Transportation
ANHP	Alaska Natural Heritage Program
BAX	Battle Area Complex
BMP	best management practice
BRAC	Base Realignment and Closure
CACTF	Combined Arms Collective Active Training Facility
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CHPP	Central Heating and Power Plant
CO	carbon monoxide
CRTC	Cold Regions Test Center
dBA	A-weighted decibel
DCCED	State of Alaska Department of Commerce, Community, and Economic Development
DNL	day-night average sound level
DoD	Department of Defense
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EUL	Enhanced Use Lease
°F	degrees Fahrenheit
FEIS	Final Environmental Impact Statement
FONSI	Finding of No Significant Impact
FY	fiscal year
GBI	Ground-Based Interceptor
GDP	Greely Development Partners
GMD	Ground-Based Midcourse Defense
GVEA	Golden Valley Electric Association

LIST OF ACRONYMS

HABS	Historic American Building Survey
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resource Management Plan
IRP	Installation Restoration Program
Leq	continuous equivalent sound level
Lmax	maximum instantaneous sound pressure level
MDA	Missile Defense Agency
MVA	megavolt amperes
MW	megawatt
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NMD	National Missile Defense
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
NOL	Notice of Lease
ppm	parts per million
ROD	Record of Decision
ROI	region of influence
ROW	right-of-way
RV	recreational vehicle
SHPO	State Historic Preservation Office
SPL	sound pressure level
SWPPP	Storm Water Pollution Prevention Plan
TAPS	Trans Alaska Pipeline System
TES	Threatened and Endangered Species
USFWS	United States Fish and Wildlife Service
VOC	Validation of Operational Concept

EXECUTIVE SUMMARY

Purpose and Need for Project

The United States Army proposes the construction, operation, and maintenance of a new medical and lodging facility and new recreational vehicle (RV) park at Fort Greely, Alaska as part of their Enhanced Use Lease (EUL) Project. The proposed action involves development on an approximately 100-acre parcel located on the west side of the Cantonment Area of the Fort Greely installation. The purpose of this project is to adequately support the recently expanded mission of the Army at Fort Greely, which is supporting the Ground-Based Midcourse Defense's (GMD) anti-ballistic missile defense system (Chapter 1). The increased population at Fort Greely and the Delta Junction area needs access to reliable primary medical care, a medical evacuation facility, and more lodging options. Currently, there is one small medical center and one small lodging facility in use on the installation. The City of Delta Junction supports a single physician's office and a limited number of small lodging facilities. The nearest emergency care facility is located 100 miles away (in Fairbanks) or further (Anchorage). The nearest large-scale hotels to the installation are also located about 100 miles away in Tok, Fairbanks, and Glenallen.

Alternatives

This Environmental Assessment (EA) presents the impact analysis of three reasonable alternatives for the construction, operation, and maintenance of the proposed facilities at Fort Greely, in accordance with the National Environmental Policy Act (NEPA) of 1969 [42 USC 4321 *et seq*.] and other applicable regulations. The alternatives analyzed in this EA are described in Chapter 2 and include:

- **Alternative 1 (No Action Alternative)** – No construction of any new facilities to support the mission of the Army at Fort Greely and benefit the Delta Junction community.
- **Alternative 2 (Proposed Action) -** The Proposed Action is to construct, operate, and maintain a lodging and medical care facility in order to adequately support the mission of the Army at Fort Greely. The Proposed Action also includes construction of a RV park, which would serve to accommodate short-term or long-term guests or workers. The lodging would consist of hotel-type rooms for short-term guests and suites for longer-term guests or workers. All construction would take place within an approximately 100-acre parcel of undeveloped land located on the west side of the Cantonment Area, in the southwest corner of the parcel. The medical/lodging facility would be constructed within a single building. This developed area would be fenced in to prevent unauthorized access to Fort Greely.
- **Alternative 3** – This alternative involves construction of the same facilities as described under Alternative 2 but at a different location, in the northeast corner of the same 100-acre parcel. This developed area would be fenced in to prevent unauthorized access to Fort Greely.

Impacts of the Alternatives

The baseline conditions (affected environment) and region of influence (affected area) are described for 15 environmental resources determined to be potentially affected by the proposed project (Chapter 3). The direct, indirect, and cumulative impacts analysis of the proposed project alternatives on these 15 resources is presented in Chapter 4. A summary of the potential project impacts is presented in Table ES-1 below.

Table ES-1 Summary of Potential Project Impacts

Resource	Alternative 1 (No Action)	Alternative 2 (Proposed Action)	Alternative 3
Air Quality	No impacts.	Adverse impacts to air quality during construction would be temporary and localized (**minor)**. Impacts during operations and maintenance would be short term (moderate) yet localized (minor) and not expected to cause exceedances of the NAAQS or state AAQS, so would be considered **minor** as well.	Same as under Alternative 2.
Cultural Resources	No impacts.	Adverse impacts to cultural resources would be **negligible** due to the relatively small surface area of soils that would be removed during construction (6.41 acres) and low probability of the presence of any cultural resources.	Same as under Alternative 2 (but the disturbed surface area is 5.69 acres).
Environmental Justice	No impacts.	No adverse impacts to environmental justice; project expected to **beneficially** impact minority or low-income populations or communities.	Same as under Alternative 2.
Geology and Soils	No impacts.	Adverse impacts to geology and soils would be **negligible** due to relatively small surface area (6.41 acres) of soil that would be removed during construction and the fact that project area soils have been disturbed by previous Army activities, construction, and wildland fires.	Same as under Alternative 2 (but the disturbed surface area is 5.69 acres).
Hazardous Waste and Materials Management	No impacts.	Adverse impacts would be **negligible** because all hazardous materials and waste management would be performed in accordance with ongoing Fort Greely procedures, as well as applicable federal, state, and local regulations.	Same as under Alternative 2.
Land Use	No impacts.	Adverse impacts to land use would be **moderate** overall due to the duration of the impact (long term-major), extent (localized-minor), and the intensity (moderate).	Same as under Alternative 2.
Noise	No impacts.	Given the proximity of the project area to existing noise sources (e.g., highway, airfield), the adverse impact of noise under Alternative 2 is expected to be short-term and localized during construction (**minor**) and barely perceptible and immeasurable during operations and maintenance (**negligible**).	Same as under Alternative 2.

Resource	Alternative 1 (No Action)	Alternative 2 (Proposed Action)	Alternative 3
Public Access and Recreation	No impacts.	Adverse impacts would be **negligible** because few recreational areas remain within the project area, and although new fencing installed would alter public access to the area, there is no unrestricted public access allowed on Fort Greely.	Same as under Alternative 2.
Socioeconomics	No impacts.	No adverse impacts to socioeconomics identified. The new facilities and the increase in the number of employment opportunities are expected to **beneficially** impact general socioeconomic environment of the area.	Same as under Alternative 2.
Transportation	No impacts.	Construction-related traffic increases would be temporary and localized, and therefore **minor**. Operational-related traffic increases would be minimized by the construction of new access roads from existing roads. Traffic increases during operations and maintenance would be short-term in duration, localized in extent, and therefore **minor** overall.	Same as under Alternative 2.
Utilities	No impacts.	The adverse impacts of Alternative 2 on utilities are expected to be mitigated where necessary (electrical, solid waste, and fire water), and otherwise **negligible** when compared to the available capacities.	Same as under Alternative 2.
Vegetation	No impacts.	Considering the mitigation measures that would be implemented, the past disturbance to the area, and relatively small surface area (6.41 acres) of soil that would be removed during construction, the impacts to vegetation under Alternative 2 would be **minor**.	Same as under Alternative 2 (but the disturbed surface area is 5.69 acres).
Visual Resources	No impacts.	Due to the low visual sensitivity, virtually nonexistent public views, and facility construction similar to that on Fort Greely, the adverse impacts are expected to be **negligible**.	Same as under Alternative 2.
Water Resources	No impacts.	Due to the spatial separation between the project area and the either of the nearest surface water bodies (over 1.2 miles to either one) and the depth to groundwater (at least 175 feet), adverse impacts to surface water and groundwater are expected to be **negligible**.	Same as under Alternative 2.
Wildlife	No impacts.	Due to the existing presence of human activity the expected impacts to area wildlife would be temporary and localized at most; and therefore **negligible** to **minor**.	Same as under Alternative 2.

1.0 PURPOSE AND NEED

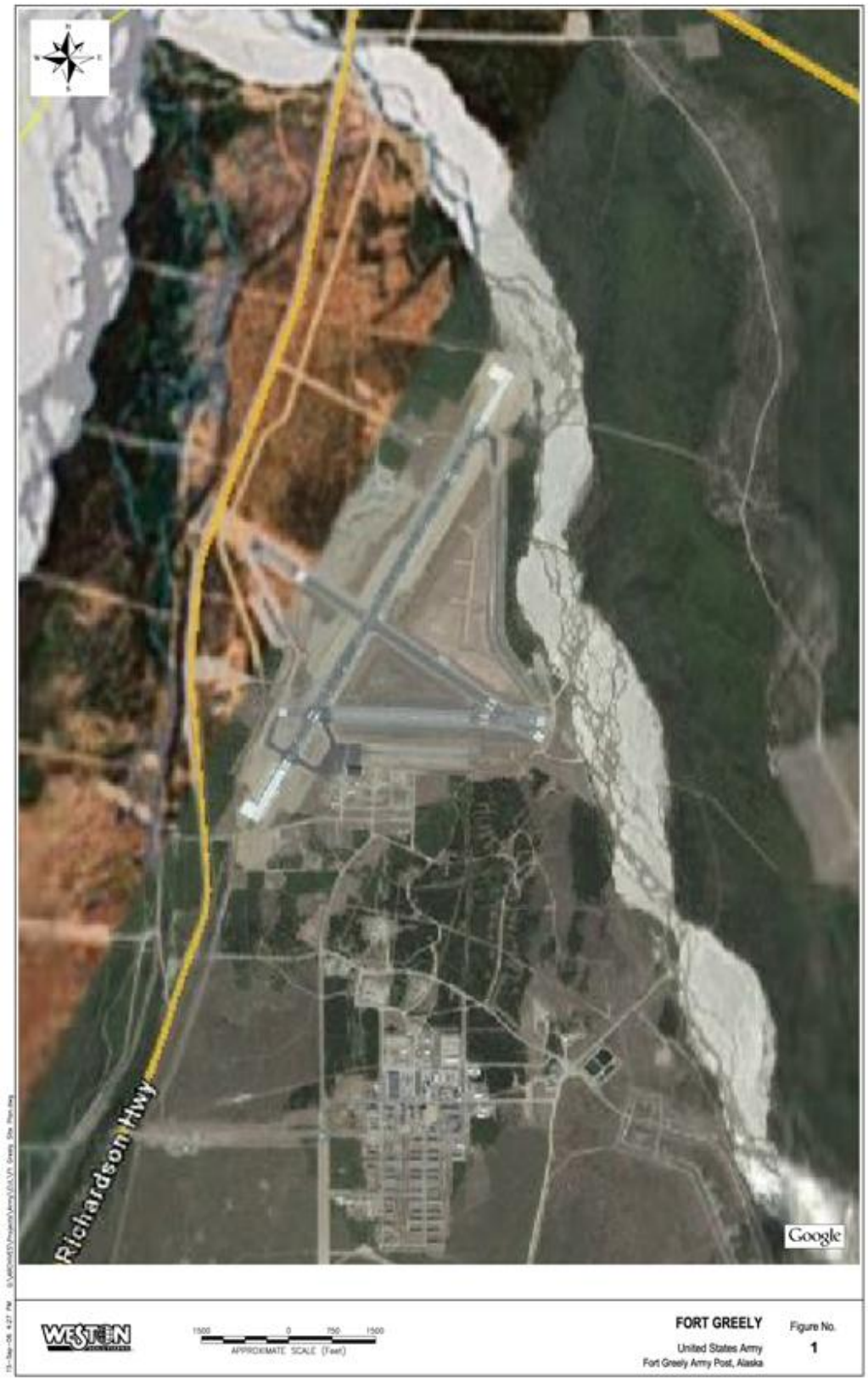
1.1 Introduction

The Army installation at Fort Greely Alaska currently encompasses 7,200 acres and is located approximately 100 miles southeast of Fairbanks, Alaska, within 5 miles of the City of Delta Junction. The installation is comprised of three main areas: the Allen Army Airfield to the north, the Cantonment Area, and the Missile Defense Complex to the south (Figure 1-1). Fort Greely, designated as a remote installation, was selected for realignment as part of the 1995 Base Realignment and Closure (BRAC) process. In 1999, the Department of Defense (DoD) announced its intention to further realign Fort Greely by making the installation a key part of GMD system, as a host to critical sectors of the Missile Defense Agency (MDA). On Fort Greely, the 49th Missile Defense Battalion is responsible for operational support of the GMD. Today, soldiers and civilians of Fort Greely work at or support the MDA, the Cold Regions Test Center (CRTC), Garrison (installation) operations and Allen Army Airfield (GDP 2006). The assigned installation population consists of military and dependents, Federal Appropriated Fund Civil Service Employees, Federal Non-Appropriated Fund Employees, Base Support or Mission Support Contractors and employees of tenant organizations.

Fort Greely is the single largest employer in the Delta Junction area, which is centered on the confluence of the Delta and Tanana rivers near the junction of the Richardson and Alaska highways. The three largest communities in the Delta region are Big Delta, Delta Junction, and Fort Greely. Delta Junction is a community of approximately 1,047 residents, many of whom work on the installation (State of Alaska Department of Commerce, Community and Economic Development [DCCED] 2006b). Currently, the City of Delta Junction supports a single physician's office and a limited number of small-scale motels, bed and breakfasts, and cabins. Fort Greely currently has one inadequate lodging facility. Large-scale hotels are available approximately 100 miles away from the installation in three different directions – Tok to the east, Fairbanks to the northwest, and Glenallen to the south (U.S. Army Corps of Engineers 2006). The installation has one inadequate medical clinic, all that remains since the 1995 BRAC closed the Troop Medical Clinic, the function of which was transferred to Fort Wainwright, located in Fairbanks. This small clinic, located in Building 661 is utilized predominantly by military personnel during emergencies (U.S. Army Garrison Fort Greely 2005). Larger, more substantial medical facilities are available in Fairbanks and Anchorage (U.S. Army Corps of Engineers 2006).

In October 2005, the Army announced its intention to seek private funding to construct, operate, and maintain a medical and lodging facility at Fort Greely, Alaska to support the increase in area populations due, in part, to the expanded mission at Fort Greely. To fulfill these mission-critical needs, the Army is utilizing the EUL process. The EUL process is provided under the authority of Title 10, United States Code, and Section 2667, as amended, which allows for military installations to outlease land and facilities to private or public entities. Specifically, installations can, among other things: 1) outgrant for other types of mission functions; 2) enter into long-term or short-term leases, providing greater flexibility for facility reuse; and 3) receive no less than fair market rental, in cash or in-kind, as consideration for the leased property (U.S. Army Corps of Engineers 2006). The Army has chosen to partner with Greely Development Partners, LLC (GDP) to construct, operate and maintain lodging, medical care, and RV park facilities as developed for the Fort Greely, Alaska EUL Project. The lodging and medical facility and the RV Park would be located on a tract of land near the entrance to Fort Greely, which would be available for the use by the general pubic and would serve to support the GMD system.

Figure 1-1 Fort Greely Alaska Vicinity Map



This EA has been prepared to consider the direct, indirect, and cumulative impacts of the construction, operation, and maintenance of the medical and lodging facility and the RV park for the proposed Fort Greely, Alaska EUL Project. This EA was prepared in accordance with the following regulations, statutes, and standards (U.S. Army Garrison Fort Greely 2005):

- NEPA, 1969 [42 USC 4321 *et seq*.]
- The President's Council on Environmental Quality (CEQ) Regulations for Implementing NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508), 2002
- Department of Defense Instruction 4715.9, *Environmental Planning and Analysis*, May 1996
- Army Regulations (AR) 200-1, *Environmental Protection and Enhancement*, February 1997
- AR 200-2, *Environmental Effects of Army Actions*, March 2002
- AR 200-3, *Natural Resources Management*, February 1995 (pub), March 2000 (mod)
- AR 200-4, *Cultural Resources Management*, October 1998
- AR 210-20, *Master Planning for Army Installations*, July 1993
- AR 5-10, *Stationing*, March 2001

The purpose of this EA is to provide the decision-maker, the Army, with the information necessary to evaluate the human, physical, and biological impacts associated with the proposed action and its alternatives. The following range of alternatives has been evaluated for presentation to the decision-maker:

- **Alternative 1 (No Action Alternative)** – No construction of any new facilities to support the missions of the Army at Fort Greely and Delta Junction community.
- **Alternative 2 (Proposed Action) -** The Proposed Action is to construct, operate, and maintain a lodging and medical care facility in order to adequately support the mission of the Army at Fort Greely. The Proposed Action also includes construction of a RV park, which would serve to accommodate short-term or long-term guests or workers. The lodging would consist of hotel-type rooms for short-term guests and suites for longer-term guests or workers. All construction would take place within an approximately 100-acre parcel of undeveloped land located on the west side of the Cantonment Area, specifically in the southwest corner of the parcel. The medical/lodging facility would be constructed within a single building. This facility and the RV park would be accessed either from Big Delta Avenue or Middle Post Road, outside of the Main Post Security Gate. The RV Park would be located within a few hundred feet of the proposed medical/lodging facility. This developed area would be fenced in to prevent unauthorized access to Fort Greely.
- **Alternative 3** – This alternative involves construction of the same facilities as described under Alternative 2 but at a different location, in the northeast corner of the same 100-acre parcel, near the intersection of Robin Road and Middle Post Road. Both the medical/lodging facility and the RV Park would be accessed via Middle Post Road. This developed area would be fenced to prevent unauthorized access to Fort Greely.

Two other alternatives, one involving construction south of Big Delta Avenue and the other involving construction of the lodging and medical facility as two separate buildings, were

considered but eliminated from further analysis due to feasibility issues and national security concerns and are described in Section 2.5.

1.2 Background

Fort Greely has undergone substantial change over the past decade. In 1948, Fort Greely became the home of the Northern Warfare Training Center and the CRTC for the U.S. Army. The Defense Base Closure and Realignment Act of 1990, as amended, authorized independent Presidential BRAC Commissions in 1991, 1993, and 1995 to review Secretary of Defense recommendations for base closures and realignments in those years. This process resulted in the 1995 realignment of Fort Greely, which consisted of the relocation of the Northern Warfare Training Center and Headquarters and CRTC Headquarters from Fort Greely to Fort Wainwright. Portions of these organizations remain in the Fort Greely vicinity at Black Rapids Training Center and Bolio Lake Test Facilities. The realignment of Fort Greely was completed on 17 July 2001, with the Army retaining some facilities to support the training areas with the remainder of the facilities excessed as unnecessary to support DoD requirements (U.S. Army Garrison Fort Greely 2005). The training lands to the east and west of Fort Greely were transferred to Fort Wainwright and are presently known as the East Donnelly Training Area and the West Donnelly Training Area. The boundary of the Fort Greely installation prior to 2002 extended further east and west and included the Donnelly Training Area. The current boundary of the Fort Greely installation excludes the Donnelly Training Area, and consists of the three main areas described in Section 1.1.

While Fort Greely was subject to the requirements of the 1995 realignment process, it was also being analyzed as a potential anti-ballistic missile defense site for interceptors and support facilities in the United States (BMDO 2000). In August 2001, the Director of the Ballistic Missile Defense Organization (BMDO) signed a Record of Decision (ROD) to implement site preparation activities (to support construction of facilities) at Fort Greely (U.S. Army Garrison Fort Greely 2005). In January 2002, the BMDO was renamed the MDA. In March 2002, the MDA prepared the *Ground-Based Midcourse Defense Validation of Operational Concept (VOC) EA* to evaluate construction and ground testing of GMD components in a realistic environment (MDA 2002a). This document analyzed Fort Greely as a potential VOC Ground-Based Interceptor (GBI) site, and a Finding of No Significant Impact (FONSI) was signed, with MDA choosing Fort Greely as the test site. In April 2003, MDA issued a ROD to develop an initial defensive operations capability at Fort Greely. The first interceptors were deployed in the summer of 2004 at Fort Greely. The 49th Missile Defense Battalion, an activated National Guard unit, provides operational support for the GMD. Fort Greely's mission for the foreseeable future would be in support of anti-ballistic missile defense system (U.S. Army Garrison Fort Greely 2006a).

In December 2002, the MDA subsequently completed the *GMD VOC Supplemental EA* and resulting FONSI to evaluate, among other actions, security fences for the cantonment area (MDA 2002b). The Cantonment Area security fencing was installed and surrounds the proposed project area on three sides: Middle Post Road to the north, the Trans Alaska Pipeline System (TAPS) right-of-way (ROW) to the west, and Big Delta Avenue to the south. The fence continues to the east to Jarvis Creek and encompasses the remainder of the Cantonment Area (U.S. Army Garrison Fort Greely 2005).

1.3 Purpose of the Proposed Action

The purpose of the proposed action under the Fort Greely Alaska EUL Project is to provide the products and services, such as the lodging and medical facility required to adequately support the expanded mission of the Army at Fort Greely and associated increases in population in the

surrounding Delta region. The Proposed Action and alternatives analyzed in this EA includes construction and operation of medical/lodging facility necessary to fulfill these existing needs.

1.4 Need for the Proposed Action

The need for the Proposed Action stems from the Army's need for reliable primary medical care, a medical evacuation facility, and lodging, all of which are critical to the adequate support of the Army's mission at Fort Greely.

With increases in worker headcount at the nearby Pogo Gold Mine, combined with expansion efforts related to TAPS (change in power supply at Pump Station #9 and associated renovations and upgrades), as well as an increase of RV traffic in the Delta Junction area, the need for modern lodging and conferencing facilities has grown. The existing lodging facility on Fort Greely is located in the Cantonment Area and offers a limited number (40) of outdated rooms converted from 1950's constructed barracks that were renovated in the 1980's for this use. Asbestos and lead paint are present in these buildings, which are currently maintained in an acceptable condition with no unhealthful exposures noted. During the fiscal year (FY) 2004, approximately 375 occupants used the transient lodging facility, although the length of stay is not known. MDA noted that there was an overall shortage of available rooms, and to alleviate this problem, they negotiated with the Fort Greely installation to use unoccupied Army Family Housing units for this purpose. This temporary solution is now impacting the ability of Fort Greely to provide Army Family Housing units to the incoming assigned military and military dependents reporting for duty (Johnson, D. 2004).

The existing lodging facilities in Delta Junction include: two RV parks and some cabins, bed and breakfasts, and small-scale motels (all located in Delta Junction). Development of an upscale lodging facility and an RV park on Fort Greely would provide another lodging and business meeting option and could enhance the overall attraction of staying in the Delta Junction area for tourists (GDP 2006).

Given the semi-remote location of Delta Junction, the new medical facility would supply much-needed medical/laboratory facilities to the Delta Junction area and to Fort Greely. The U.S. Department of Health currently lists the Southeast Fairbanks Census Area (includes Fort Greely and Delta Junction) as a Medically Underserved Area (refer to Section 3.10). The Delta Junction area residents and personnel at Fort Greely currently depend on one doctor at the Delta Junction Family Medical Center who maintains over 8,000 patient files. Implementation of this proposal would offset the recognized per capita shortfalls and provide for a greater spectrum of medical services to the local residents (GDP 2006).

The Delta Junction community is socially and economically interdependent with the installation. Fort Greely accounts for a large percentage of the employment in the region and the community cooperates with Fort Greely for the provision of some basic services. Delta Junction uses a school on Fort Greely as the sole middle school in the region. Given its importance to the local community, Delta Junction's elected town council and the Chamber of Commerce have indicated their support for the proposed project as a step towards assuring Fort Greely's relevance to the defense of the United States (U.S. Army Corps of Engineers 2006).

1.5 Permits and Approvals

Table 1-1 lists the approvals required for construction and operation of the proposed EUL project.

Table 1-1 Permits and Approvals

Agency	Permit/Approval	Activity/Comments
Alaska Department of Natural Resources, Division of Mining and Water	Water Use Permit	Installation of new fire well.
Environmental Protection Agency (EPA)	National Pollution Discharge Elimination System (NPDES) General Storm Water Permit for Construction	Construction activities.
Alaska Department of Transportation (ADOT)	ROW permit for road construction	AKDOT ROW permit required for Alernative 3 access
United States Fish and Wildlife Service (USFWS)	Section 7 Threatened and Endangered Species (TES) Consultation	Although no TES are documented within project area, USFWS was contacted for concurrence with the Army's assessment.
Alaska Department of Environmental Conservation (ADEC)	Air Quality Construction Permit	Minor construction activities involving new stationary sources and all existing stationary sources that are adding new emissions units or modifying existing emissions units
ADEC	Air Quality Operations Permit	Operations and maintenance of a separate stationary source. The project may not require a operating permit due to the size of emission units
State Historic Preservation Office (SHPO)	Section 106 consultation letter	Consultation letter submitted to SHPO, although no historic buildings are located in project area

1.6 Scope of the Environmental Assessment

The scope of this EA includes evaluation of potential impacts to relevant resources resulting from the proposed project. All relevant resources were initially evaluated, but only those determined to be affected by the proposed project were carried forward for analysis in this EA. The following section describes those resources selected for detailed analysis and those resources eliminated from detailed analysis.

1.6.1 Resources Selected for Detailed Analysis

Consistent with CEQ regulations, the scope of the analysis presented in this EA was defined by the range of potential environmental impacts that would result from implementation of Alternative 1, Alternative 2, or Alternative 3. For this EA, the human, physical, and biological environment is discussed in terms of 15 resource areas. Following is a brief discussion of these resources and the potential impacts to them from the proposed project (construction, operation, and maintenance phases).

Air quality - Air quality would potentially be affected through increased emissions during construction and operations and maintenance of the proposed facilities.

Cultural Resources - Although no known cultural resources are present within the proposed project area, currently unidentified subsurface cultural resources could be disturbed by construction activities.

Environmental Justice - Some small communities near Fort Greely are considered minority or low-income, and would be affected by the proposed project.

Geology and Soils - Soils within the project area would be disturbed during construction activities through removal and excavation.

Hazardous Materials and Waste - Some hazardous materials will be used during construction and operation activities. Some hazardous wastes would be generated during construction and maintenance. Disposal for all construction-generated hazardous waste is the responsibility of the general contractor, and would be sent to a licensed disposal location.

Land Use - Existing land use in the project area could be altered as a result of the proposed project.

Noise - Noise from construction, operation, and maintenance of the proposed project would add to the existing noise levels.

Public Access and Recreation - Recreational areas surrounding the project area (within Fort Greely) could be affected by the proposed project. However, there is currently no public access and few recreation activities in the proposed project area.

Socioeconomics - The proposed project would increase employment opportunities and provide enhanced medical services.

Transportation - The proposed project would cause an increase in traffic to and from Fort Greely.

Utilities – The proposed project would require the use of alternate sources for solid waste disposal, electricity, and fire water. The remainder of the current utility sources on Fort Greely would be adequate to support the proposed project.

Vegetation - The vegetation within and surrounding the footprints of the proposed project facilities would be removed or altered.

Visual Resources and Aesthetics - Existing view sheds of the area surrounding Fort Greely and aesthetics could be affected by the presence of new facilities in the proposed project area.

Water Resources - Construction land clearing activities could result in an increase in sediment to surrounding surface waters and construction of the proposed project could increase storm water discharges relative to existing storm water permits. There may be an operations and maintenance-related increase in treated wastewater discharge to Jarvis Creek.

Wildlife - Construction, operation, and maintenance of the proposed project could alter the normal distribution of wildlife in the project area.

1.6.2 Resources Considered but Eliminated from Detailed Analysis

To focus the EA, the Army selected specific resources for further analysis and eliminated others from evaluation. Multiple resources were dismissed from analysis because it was determined that there would be no impact from the proposed project. Those resources include:

- **Airspace -** No new aircraft or flight patterns are planned for the proposed EUL project. Nor are there any requirements for alterations of current flight times. Therefore, the proposed project is not expected to result in impacts to airspace within Fort Greely.
- **Fisheries -** Due to the spatial separation between either of the two closest fish-bearing waterways (Jarvis Creek and or Delta River) and the proposed project area (over 1.2 miles), no impacts to fish or fish habitat in these waterways are expected from the

proposed project. It is for this reason that no fish habitat permit is required from the Alaska Department of Natural Resources is required. The potential for increased access as a result of the EUL project and any related increase in fishing pressure on these waterways is analyzed under Public Access and Recreation.

- **Floodplains**. Although floodplain boundaries have not been developed for the project area, there is a low probability of flooding. The elevation of the 100-acre parcel is approximately 1,275 feet whereas the surrounding waterways are slightly lower in elevation (1,250-1,225 feet). High flows in the Delta River typically overflow to the west rather than toward the project area. However, the Delta River does flood to the east, but would be limited by the high bank west of the Richardson Highway (an elevation difference of 60 ft or more). Jarvis Creek overflows to the east away from FGA. (U.S. Army Alaska 1999). For these reasons, no floodplain development permit is required.
- **Human Health and Safety -** All but the natural hazards can be avoided through adherence to site specific safety plans and hazardous waste management practices. The contaminated sites located within the parcel that are part of the Army's Installation Restoration Program (IRP) would be surrounded with orange snow fencing to provide a visual exclusionary zone. For these reasons, there is no expected impact from the project on human health and safety.
- **Subsistence**. There are no known subsistence uses in the proposed project area.
- **Threatened and Endangered Species -** The Endangered Species Act requires an analysis of impacts on all federally listed TES. No federally designated threatened, endangered, or candidate species are known to occur within the project area. However, in compliance with Section 7 of the Act, the USFWS has been consulted for their concurrence with the Army's position. The rare, uncommon, and priority plant species found in the project area are discussed in Section 3.13, and the sensitive wildlife species within the project are discussed in Section 3.16.
- **Wetlands**. A 1993 National Wetlands Inventory of pre-BRAC Fort Greely concluded that there were no wetlands within or adjacent to the proposed project area. For this reason that no Army Corps of Engineers Section 404 permit is required.

1.6.3 Relevant NEPA Documents

As appropriate, the information contained within and the conclusions of the following NEPA studies have been summarized and are included in this document:

- *Final Environmental Impact Statement (FEIS) for the Construction and Operation of a Battle Area Complex (BAX) and a Combined Arms Collective Active Training Facility (CACTF) Within U.S. Army Training Lands in Alaska. Combat Training Facility. Volumes 1 and 2* (U.S. Army Alaska 2006)
- *National Missile Defense (NMD) Deployment Environmental Impact Statement (EIS)* (BMDO 2000)
- *Supplement to Cold Regions Test Center Cold-Weather Automotive Test Complex Donnelly Training Area, Alaska: Perimeter Fencing and Security Upgrades Environmental Assessment* (U.S. Army 2005)
- *Fort Greely Installation, Fort Greely, Alaska Environmental Assessment. U.S. Army Garrison Fort Greely, Delta Junction, AK* (U.S. Army Garrison Fort Greely 2005).

- *Transformation of U.S. Army Alaska Final Environmental Impact Statement* (U.S. Army Alaska 2004)
- *Integrated Natural Resource Management Plan (INRMP) 2002-2006*. Volume I-Fort Greely and Donnelly Training Area (U.S. Army Alaska 2002)
- *Alaska Army Lands Withdrawal Renewal Final Legislative Environmental Impact Statement*. Volume I (U.S. Army Alaska 1999)
- *Integrated Cultural Resources Management Plan (ICRMP) Fort Greely Alaska* (U.S. Army Garrison Fort Greely 2006a)
- *Ground-Based Midcourse Defense (GMD) Validation of Operational Concept Environmental Assessment* (MDA 2002a)
- *Ground-Based Midcourse Defense Validation of Operational Concept Supplemental Environmental Assessment* (MDA 2002b)

1.7 Public Participation

As required under NEPA, this EA will be presented for public review in October 2006 for a period of 30 calendar days after a notice of availability has been published in the local newspapers. An open house-style public meeting will be held in October 2006. Comments received will be reviewed and revisions incorporated along with responses, as applicable.. If this EA results in a FONSI (meaning that a subsequent EIS is not required), the draft FONSI will be made available to the public for review for 30 days prior to the initiation of the Proposed Action (32 CFR 651.35(b) and 651.14(b)(2)).

1.8 Schedule

One primary development area, the lodging and medical complex, is covered by this EA. The Army expects the development process to commence on all portions of the development simultaneously. The design and permitting phase is expected to begin in September 2006 and construction will follow and is currently planned to be completed by April 2009. Some assets would take longer to complete and bring online due to unique engineering (i.e., foundation engineering as required to meet the soil conditions), and construction requirements.

Certain portions of the proposed facilities could be constructed in phases. For example, the RV Park could potentially be ready for summer 2007 season. Lodging could be constructed in a phased mode to accommodate earlier opening of the core cluster and some rooms. The medical facility would have a shorter construction term and should be operational during 2007, provided that long-lead medical equipment can be procured and delivered in the same period of time (GDP 2006).

2.0 DESCRIPTION OF ALTERNATIVES

The decision that will be supported by this EA is whether to construct, operate, and maintain an additional medical and lodging facility at Fort Greely in support of the Army's expanded mission at Fort Greely. This section describes the range of reasonable alternatives, including the two action alternatives and a no action alternative. Also discussed are mitigation measures for these alternatives and the alternatives that have been considered but dismissed from further analysis. Table 2-1 compares the key features of these alternatives.

2.1 Alternative 1 (No Action Alternative)

The No Action Alternative is to not construct any new facilities at Fort Greely. Existing medical and lodging facilities would continue to be used in the current manner.

2.2 Alternative 2

The Alternative 2 involves development of a combined medical center and lodging facility complex and separate RV park in the southwest corner of an approximately 100-acre parcel of undeveloped land bordered to the south by Big Delta Avenue, to the west by the underground TAPS, to the north by Middle Post Road, and to the east by Robin Road (Figure 2-1). The project area excludes the contaminated sites located within the parcel that are part of the Army's IRP (refer to Section 3.6). This parcel is located 1.5 miles south of Allen Army Airfield and 1 mile north of the Missile Defense Complex. Because users of the facilities within this site would not be required to pass through the Main Security Gate, the site would be fenced to prevent unauthorized access to Fort Greely. The final fencing perimeter would be determined concurrent with final site selection. The existing fence that surrounds this parcel is described in Section 1.2. A new underground cement utilidor (containing electricity, steam heat, sanitary sewage and potable water supply) would be constructed, connecting the RV Park and the medical center/lodging facility to the existing installation utilidor loop located adjacent to Fire Station #1. The utilidor would be approximately 6 feet deep, 4 feet wide, and less than 2,000 feet in length; its route will be determined with final site selection. Refer to Table 2-1 for specifications on utilities. Solid waste generated from the construction and operation of the new facilities would be disposed at the City of Delta Junction Solid Waste Facility.

Under Alternative 2, the project would be designed in accordance with applicable state and national codes, commercial standards, and in keeping with the *Installation Design Guide, Fort Greely Alaska*, dated 29 September 2005. Project designs would be coordinated with Fort Greely for conformity to installation guidelines and mission as envisioned under the EUL process. As such, the project's design would comply with Fort Greely's master plan, historical context and the installation's site planning, architecture, landscape, lighting and signage design criteria where applicable (GDP 2006). Approximately 3 acres of landscaping is planned for around the facilities and parking lots.

2.2.1 Medical and Lodging Facility

The medical and lodging facility would be constructed as one building complex, with a slab on grade foundation with an estimated footprint of 1.66 acres for the facility only. The estimated footprint of the paved parking areas for both the medical/lodging facility would be approximately 3.92 acres.

Access to the medical/lodging facility would be from either of two directions north or south. From the north, access would be east from the Richardson Highway to Middle Post Road, and

Figure 2-1 Lodging/Medical Complex Alternatives

then to an existing trail that parallels the underground TAPS ROW. This trail would be upgraded (paved) into a 25-mile per hour, two-lane road, which would then connect to a new road that would be built inside the existing security fence just north of the Main Gate Security Check Point. Alternatively, from the south, access would be from a new road that would be constructed to intersect with Big Delta Road, west of the existing Main Gate Security Check Point and would traverse to the north to the site. The access road to the medical/lodging facility and the RV Park would be approximately 1,500 feet long. Separate parking lots, one for the lodging and another for the medical facility, would be located to the west of the combined building.

The construction of these facilities and roads would involve minimal displacement of the existing surface materials and the placement of sorted sands and gravels for road substructure and asphalt for roadway surface material. Gravel used for the construction of the access road beds would originate from on-site excavation It is estimated that the depth of excavation for the facility foundation would be approximately 4 feet, for the roads and parking lots the depth would be about 2 feet, and for the utilidor the depth would be approximately 6 feet. The soil in the project area contains a layer of sand and gravel beginning at approximately 10 inches below the surface.

The medical facility would consist of a primary care area and a two-ambulance bay annex. Specifically, the primary care would include: three trauma/multi-use rooms, 12 exam rooms, three dental exam rooms, two procedural rooms, four hospital beds (two rooms), three radiology rooms, one physical therapy room, one lab, two waiting areas (one large, one small), one dispensary area, and one sleep room with showers. Medical waste will be transferred to Fairbanks in accordance with ADEC regulations.

The lodging facility would include between 70-100 guest rooms, lodging offices, a conference room, indoor courtyard, laundry room, mechanical room, a restaurant, and indoor recreation and lounge areas. Joint use amenities in the building would include the exercise facility, swimming pool, whirlpools, and saunas. The lodging facility would replace the existing lodging facility, located in the Cantonment Area, which is much smaller and is insufficient to meet demands.

Much of the proposed development site was burned by the Donnelly Flats fire in 1999, leaving new sapling growth amongst burned and standing dead spruce trees. These burned trees within the project footprint would be harvested by the developer and made available for Fort Greely installation and public collection (U.S. Army Corps of Engineers 2006).

2.2.2 Recreational Vehicle Park

The RV Park would be located adjacent to the lodging facility. The footprint of the paved area would be approximately 0.83 acres and an approximately 400 foot long, two-lane access road would connect the park to the proposed access road from Middle Post Road or Big Delta Road. The park would provide 25 RV stalls, and include a sewage dump station, potable water and electrical connections. The park is intended for summer use only. The sewage treatment and water source would be the existing facilities on the installation. The utilidor would connect the utilities from the installation to the RV park, route to be determined with final site selection.

2.3 Alternative 3

Alternative 3 involves construction of the same facilities as described under Alternative 2 at a different location, in the northeast corner of the same 100-acre parcel (Figure 2-1). The medical/lodging facility would have an estimated footprint of 1.66 acres, the same as under Alternative 2. The access road would be just less than 1,000 feet long. The estimated footprint of the two paved parking areas for the medical/lodging facility would be approximately 3.2 acres, slightly less than under Alternative 2, due to a different configuration of the facility and parking areas. The estimated footprint for the RV Park would be the same as under Alternative 2, 0.83

acres. The utilidor would follow Robin Road. This developed area would be fenced to prevent unauthorized access to Fort Greely. The final fencing perimeter would be determined concurrent with final site selection. A new exit from the Richardson Highway would be constructed to provide access to the entrance area of this development, which would be from the existing Middle Post Road crossing of the TAPS right-of-way, and onto an existing trail, which trends to the southeast towards Robin Road. This existing trail would be upgraded and paved as described under Alternative 2. The medical/lodging facility would be located south of this trail and the RV Park would be located to the north.

Table 2-1 Comparison of Alternatives

Key Features	Alternative 1 (No Action)	Alternative 2 (Proposed Action)	Alternative 3
Location of structure	Not Applicable (N/A)	Southwest corner of 100-acre parcel	Northeast corner of 100-acre
Footprint of developed area (Impermeable surfaces)	N/A	Approximately 6.41 acres	Approximately 5.7 acres
Building Height	N/A	45 feet	Same as Alternative 2
Access roads paved area (acres)	N/A	Less than 1,500 feet, two lanes	Approximately 1,000 feet
Access to Site	N/A	Two options: Outside of the Main Security Gate, from Big Delta Avenue or Middle Post Road.	Outside of the Main Security Gate, from Middle Post Road
New Fencing	N/A	Chain link fencing, 8 feet high, perimeter (length) to be decided concurrent with final site selection, would surround the developed area	Same as Alternative 2
Depth and area of excavation disturbance	N/A	Estimated depth of excavation for the facility foundation= 4 feet, roads and parking lots=2 feet, and utilidor= 6 feet. Estimated utility corridor length is less than 2,000 feet.	Same as Alternative 2
Landscaping	N/A	Approximately 3 acres - Assorted hardy perennial vegetation	Same as Alternative 2
Expected Occupancy/Usage	N/A	70-100 beds overnight lodging; average 50 people per day	Same as Alternative 2
Land Use Designation	N/A	"Natural Area"	"Natural Area" and "Parks and Recreation"
Traffic Counts	N/A	Construction: 20/day for 6 months Operations and maintenance vehicles/day: Summer = 200 Winter = 75	Same as Alternative 2

Key Features	Alternative 1 (No Action)	Alternative 2 (Proposed Action)	Alternative 3
New generator specifications	N/A	An emergency (standby) generator would be inside the building. <1,000 hour #2 diesel fueled, 500 kilowatt. To be used for critical life support care and critical lodging.	Same as Alternative 2
Utility Requirements	N/A.	Electricity- supplied by tapping into an existing or new electrical feeder. Solid Waste-Solid waste generated from the construction and operation of the new facilities would be disposed at the City of Delta Junction Solid Waste Facility. Water/Wastewater - all would be handled with the existing systems, connected to new site via utilidor. Communications- telephone line would be connected via utilidor. Heat-steam heat from the installation Fire water-1 new well (quantity pumped during tests); swimming pool would be main fire water source.	Same as Alternative 2
Materials Supply (source and quantities)	N/A	Gravel source would be from on-site excavation. Asphalt, building materials (e.g., lumber, concrete, drywall, OSB, roofing)	Same as Alternative 2
Operational Support (no. of persons per day) and Local Employment (Fort Greely and Delta Junction residents)	N/A	95 percent of between 30-35 full time employees	Same as Alternative 2

2.4 Mitigation Measures, Including Best Management Practices

The proposed facilities would be developed while preserving the natural surroundings, maximizing usability and security, and minimizing environmental impacts as well as any potential negative impacts on the surrounding community. The medical/lodging facility would be constructed such that Fort Greely physical security and force protection needs are preserved by natural forested set backs and construction that restricts viewing of Fort Greely's sensitive mission areas (GDP 2006).

As part of the Army's proactive planning approach, best management practices (BMPs), or site-specific environmental protection practices, will be followed during construction and operation of the facilities. In addition, mitigation measures will be implemented as necessary. Mitigation measures are specific actions that, when implemented, reduce impacts, protect resources, personnel, employees, and visitors on Fort Greely. Often, BMPs are proposed as mitigation measures, and no further measures are required. Mitigation measures must be considered even for impacts that by themselves would not be considered "significant" and all reasonable mitigation measures that could alleviate the environmental effects of a proposed action must be identified [40 CFR Sections 1502.14(f), 1502.16(h), 1508.14]. The following BMPs and mitigation measures would be implemented for the resources introduced in Section 1.6.1, as applicable. These measures are considered to be part of the action alternatives and they are assumed in the analysis of impacts.

2.4.1 Air Quality

Construction would be conducted in accordance with applicable regulations and permits. Contractors would be required to use BMPs such as controlling vehicle and equipment pollution by turning off motors of equipment when not in use. Standard dust suppression techniques (BMPs) and a vehicle maintenance program would help minimize fugitive dust emissions and vehicle exhaust emissions. All construction-related and operations-related emissions resulting from the proposed project would be covered by any required air quality permits.

2.4.2 Cultural Resources

Project excavations would be monitored by a qualified cultural resource person. GDP has notified Ellen Clark (U.S. Army Alaska) that a cultural resources person will be required for site monitoring during excavation. The cultural resources person will be notified during the construction planning stage, prior to the commencement of construction activities that their presence is required at the site. If previously unidentified cultural resources were located during construction, mitigation measures would involve ceasing project construction in the discovery area until cultural resource staff could determine the significance of the finding and appropriate courses of action.

2.4.3 Geology and Soils

BMPs for sediment control and erosion would be implemented in areas of soil disturbance. Construction activities would incorporate seismic design parameters consistent with the nature of the facility and its geologic setting. Facility construction would incorporate earthquake-resistant designs to reduce the potential impacts occurring from a significant seismic event (U.S. Army Garrison Fort Greely 2005). An NPDES General Storm Water Permit for Construction will be obtained prior to construction.

2.4.4 Hazardous Materials and Waste Management

All hazardous materials handling would be consistent with existing BMPs for the use and storage of hazardous materials at Fort Greely, such as the *U.S. Army Garrison Fort Greely, Alaska Spill Prevention and Response Plan* (Feb 2006), *U.S. Army Garrison Fort Greely, Alaska Storm Water Pollution and Prevention Plan* (July 2005), *Hazardous Materials and Waste Management Procedure (June 2006),* and emergency response procedures. All hazardous material and regulated waste will be managed in accordance with applicable USEPA and ADEC standards.

2.4.5 Noise

Mitigation measures to reduce the impacts of noise on local residents involve limiting the hours of operation during the construction phase, with restrictions from 6:00 AM to 6:00 PM.

2.4.6 Utilities

Mitigation measures for utilities would include efficient building construction practices and building designs. To mitigate the anticipated stress on utilities such as electricity, solid waste disposal, and firewater, alternate utility sources (other than those currently operating on Fort Greely) have been chosen. Specifically, either an existing electrical feeder would be tapped or a new one would be added to supply additional electricity to Fort Greely. Solid waste from construction activities would be disposed of at the Delta Junction Solid Waste facility and a new fire water well would be drilled.

2.4.7 Vegetation

BMPs for vegetation would include the covering of back slopes and fill slopes with coarse materials to discourage colonization by invasive plants and the re-grading and re-seeding with native plant species (lawn seed). Non-native plant species would be used only in landscaping around the building and parking areas.

2.4.8 Visual Resources and Aesthetics

Preservation of these resources would be through BMPs that include: limiting the height of the building (45 feet maximum), using color schemes and architecture consistent with the current Fort Greely Installation design standard, and landscaping around the facility.

2.4.9 Water Resources

All construction and operations and maintenance would be performed in accordance with State of Alaska and Federal water resources regulations (i.e., NPDES permit requirements, the Storm Water Pollution Prevention Plan [SWPPP] for construction and operations, associated BMPs, and storm water control measures). BMPs to reduce the potential for soil erosion into water resources from all construction activities could include limiting the amount of area exposed, installing silt fences, and adding protective covering to any slopes to enhance long-term stability. Once construction is complete and vegetation is stabilized, there would be little soil erosion from operation of the site. A sediment erosion control plan would be prepared if needed and would address each of the measures.

2.4.10 Wildlife

The early nesting season for migratory bird habitat present in and surrounding the project area (shrub or open forest or woodland) is May 1 to July 15 (U.S. Army Alaska 2006). In accordance with the Migratory Bird Treaty Act, no migratory bird habitat would be removed during this time period. If an active nest of a migratory species were encountered at any time, it would be protected from destruction. Eggs, chicks, or adults of wild birds would not be destroyed.

To avoid attracting animals to the site either during construction or operations and maintenance, household waste and food garbage would be securely stored in dumpsters and wildlife feeding would be discouraged.

2.5 Alternatives Considered But Not Carried Forward

Two alternatives were considered but eliminated from further analysis. These alternatives and the reasons for their dismissal include:

1. The first alternative considered but eliminated involved a location different from Alternatives 2 and 3: construction of the same facilities described under the action alternatives on another 100-acre parcel located immediately to the south of the Main Post Security Gate, on Big Delta Avenue (Figure 2-1). This area south of Big Delta Road was chosen initially by the Army because of its accessibility from the Richardson Highway and proximity to the Cantonment Area. The Army later dismissed this 100-acre parcel, and therefore this alternative for national security reasons due to its proximity to the Missile Defense Complex.
2. The second alternative considered but eliminated involved a facility design different from Alternatives 2 and 3: construction of the lodging and medical facility as two separate structures, as opposed to one structure. This alternative was eliminated from further consideration due to the possibility of increased impacts on land use, which would result from a larger footprint for the facilities, additional utility requirements to support the separated facilities, and loss of overall operational efficiency present in the single building design proposed under Alternative 2.

3.0 AFFECTED ENVIRONMENT

This section describes the environmental baseline for the physical, biological, and human environment resources (carried forward for analysis) that are found in the project area and within the vicinity of Fort Greely that may be affected by the proposed project. The environmental baseline describes the current and relevant past condition of these resources and serves as the basis for the direct, indirect, and cumulative impacts analysis presented in Chapter 4. Resource issues determined not to be affected by the proposed project include: airspace, fisheries and habitat, floodplains, human health and safety, subsistence, threatened and endangered species, and wetlands.

3.1 Project Area and Region of Influence

The region of influence (ROI) for physical and biological resources includes the project area as well as other relevant portions of the Cantonment Area, Missile Defense Complex, and the Allen Army Airfield, that could potentially be affected by the proposed activities, depending on the resource (U.S. Army Garrison Fort Greely 2005). The ROI for human resources includes the three largest communities within the Delta region: Big Delta, Delta Junction, and Fort Greely.

3.2 Air Quality

Region of Influence

The ROI for air quality typically includes the geographic air shed in which the emissions would occur. This area encompasses both direct, immediate impacts due to criteria pollutants and hazardous air pollutants that generally disperse within a few miles of the emissions source, and indirect, delayed impacts due to precursor actions (primarily ozone precursors) that can delay impacts for several hours (BMDO 2000). Based on this definition, the ROI for air quality under the proposed project would include the air basin surrounding the areas in which the proposed project would take place, including the Cantonment Area.

Affected Environment

Air quality is regulated by the EPA's National Ambient Air Quality Standards (NAAQS) and the State of Alaska Ambient Air Quality Standards (AAQS) that establish limits on the maximum allowable concentrations of six pollutants to protect public health and welfare: carbon monoxide (CO), lead, oxides of nitrogen, ozone, particulate matter, and sulfur dioxide. Pollutant concentration is determined by the type and amount of pollutants emitted into the atmosphere; the physical characteristics, including size and topography of the affected air basin; and meteorological conditions related to prevailing climate. According to EPA regulations, an area with air quality better than the NAAQS is designated as being in attainment; areas with worse air quality (have exceedances for more than 3 days during a 3-year period) are classified as nonattainment areas. Emissions of air pollutants from operations in Alaska are limited to the more restrictive standard (federal or state). Air quality issues on all Army installations are addressed in Army Regulation (AR) 200-1, *Environmental Protection and Enhancement* (Department of the Army 1997). This Air Program describes management of air emissions to protect human health and the environment, and to comply with all applicable regulations. The Fort Greely area is currently in attainment for all NAAQS and State of Alaska AAQS Air quality in the area of Fort Greely is described in detail in the *Fort Greely Installation EA* (U.S. Army Garrison Fort Greely 2005).

Climate

Fort Greely is located in the interior of Alaska, characterized by seasonal climatic extremes. The average low temperature in January is -11 degrees Fahrenheit (°F). The average high during July is 69°F. Temperature extremes ranging from a low of -63°F to a high of 92°F have been recorded. inches (U.S. Army Garrison Fort Greely 2005) Prevailing winds are from the east-southeast September through March; from the west in April; from the southwest in May, June, and July; and from the south in August. The average annual precipitation is 11.1 inches, with an average annual snowfall of 40.5 inches (U.S. Army Garrison Fort Greely 2005).

Regional Air Quality

The Fort Greely area is in attainment for all NAAQS and Alaska AAQS. Pollutants from mobile sources, such as automobiles and construction equipment, include hydrocarbons, CO, nitrogen oxides, and particulate emissions. The primary pollutant of concern from mobile sources in Alaska is CO, which is emitted during cold starts during moderately cold weather, prolonged idling periods, and low-level temperature inversions (U.S. Army Garrison Fort Greely 2005). The Alaska State Standard and National Primary Standard for CO during an 8-hour period is 9 parts per million (ppm) and during a 1-hour period is 35 ppm (U.S. Army Garrison Fort Greely 2005).

Existing Emission Sources

Principal sources of air pollution in the Fort Greely area are from limited traffic and petroleum hydrocarbon fuels burned for heat and/or power. Fort Greely is a major emissions source, but is not a major source of hazardous air pollutants. Major emissions sources on Fort Greely include boilers, generators, storage tanks, standby pumps, and prescribed burning/firefighter training. Fort Greely currently maintains an Air Quality Operating/Construction Title V Air Permit with ADEC, which was issued 14 November 2003, revised 30 December 2003 and 23 September 2005. An application for a third revision is planned to be submitted to ADEC in September 2006 (U.S. Army Garrison Fort Greely 2005).

3.3 Cultural Resources

Region of Influence

For cultural resources, the term ROI is synonymous with the "area of potential effect" as defined under cultural resources legislation. Overall, the ROI for cultural resources includes areas requiring ground disturbance (e.g., areas of new facilities, parking lots, roads, utility corridors).

Affected Environment

Archaeological evidence indicates that the Fort Greely area has had human occupation for between 10,000 and 12,000 years. Sites associated with the prehistoric era contain materials typical of those recorded from other sites within Interior Alaska (e.g., projectile points, cores, and tools for preparing animal skins and food) (U.S. Army Garrison Fort Greely 2006a).

Archaeological Sites

The ICRMP (U.S. Army Garrison Fort Greely 2006a) briefly describes eleven archaeological investigations that have been conducted at Fort Greely. From these investigations, 84 prehistoric archaeological sites have been identified, all of which are located in one of three types of physiographic settings: on a high ridge, hill, or knoll; on a bluff or terrace overlooking a major river or site drainage; or on a lake margin. Sites are found in every type of vegetative community and are located predominantly west of the Delta River. Most of the sites are surface flake scatters, isolated artifacts, or are found in a disturbed context and contain insufficient information to determine site function, affiliation, or age. The remainder is largely associated with the Northern

Archaic Tradition, although materials from earlier time periods have also been identified (U.S. Army Garrison Fort Greely 2006a).

In 1997, a survey of the BRAC Cantonment Area (including the runway area) was conducted by the Bureau of Land Management and the Corps of Engineers, Alaska District (Reynolds 1998 *in* U.S. Army Garrison Fort Greely 2006a). Due to a lack of subsurface artifacts, the area was cleared of cultural resources concerns (U.S. Army Garrison Fort Greely 2006a). However, according to the ICRMP, the Reynolds 1998 report is flawed and its conclusions should not be used for future analysis. The most recent survey (Robertson 2005 *in* U.S. Army Garrison Fort Greely 2006a) covered approximately 5,000 acres of Fort Greely and turned up eight new sites, all of which are outside of the project area. Supporting the apparent absence of any archaeological discoveries on Fort Greely is the fact that the low, monotonous terrain of Fort Greely is considered to have a low probability of containing archaeological resources (U.S. Army Garrison Fort Greely 2006a). As mentioned under *Mitigation Measures* (Section 2.4), a qualified cultural resource person would monitor all project excavations.

Historic Properties

During the preparations for Fort Greely's BRAC, the Army conducted a historic property survey of all of Fort Greely's buildings, which resulted in the identification of 207 World War II and Cold War buildings and structures on the installation (Mobley 1999 *in* U.S. Army Garrison Fort Greely 2006a). No World War II buildings were found on the installation that met National Register eligibility. Twenty six buildings that were considered eligible under a Cold War context were identified in a single historic district in the main Fort Greely Cantonment Area, all of which are located outside of the proposed project area. Fort Greely and the SHPO entered into a Memorandum of Agreement (2000) concerning these structures and the Army agreed to mitigate any impacts to these structures by preparing a Historic American Building Survey (HABS). With completion of the HABS recordation, the Memorandum of Agreement allowed the Army to transfer, remodel, rehabilitate, or demolish any of these buildings without consultation with the SHPO (U.S. Army Garrison Fort Greely 2006a).

3.4 Environmental Justice

Region of Influence

The ROI for environmental justice analysis is the Southeast Fairbanks Census Area, specifically the communities of Big Delta, Fort Greely, and Delta Junction.

Affected Environment

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, requires all federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. In 2000, it was estimated that the population in the Southeast Fairbanks Census Area was 6,174 individuals, of which the ROI totaled 33 percent (2,050 persons). In 2000, the Alaska Native population within the ROI in 2000 was relatively small, with Fort Greely having the lowest density of the three communities at 2.0 percent. Delta Junction and Big Delta had Alaska Native populations of 5.6 percent and 2.1 percent, respectively (DCCED 2006b). This percentage addresses those reporting Alaska Native alone or in combination with one or more races. Delta Junction has a higher percentage of Caucasian individuals (91 percent in 2000) and a lower proportion of Alaska Native, black, and Hispanic individuals as compared to statewide averages (U.S. Army Alaska 2006).

The socioeconomics discussion in Section 3.10 provides information on the approximate locations of minority and low-income populations, their incomes, and other economic characteristics, that would be potentially affected by the proposed project, which include the communities of Big Delta, Delta Junction, and Fort Greely.

3.5 Geology and Soils

Region of Influence

The ROI for soils would be the same as for cultural resources.

Affected Environment

Geology and soils include those aspects of the natural environment related to the earth, which may affect or be affected by the proposed project. The resource is described in terms of physiography, geologic units and their structure, soil condition and capabilities, the presence/availability of mineral resources, and the potential for natural hazards. Geology and soils is discussed in detail in the *NMD EIS* (BMDO 2000) and the *Fort Greely Installation, Fort Greely, Alaska EA* (U.S. Army Garrison 2005a).

Physiography

Fort Greely is in the eastern portion of the Tanana–Kuskokwim Lowlands physiographic province on the north side of the Alaska Range. Streams flowing through the foothills generally originate in the Alaska Range and flow north in rugged V-shaped canyons and across broad terraced valleys. Fort Greely is situated between two significant drainages originating in the foothills—the Delta River to the west and Jarvis Creek to the east. The terrain primarily is mildly undulating with elevations ranging from approximately 1,225 to 1,450 feet (U.S. Army Garrison 2005).

Geology

Fort Greely is located on a low alluvial terrace that has a gently undulating surface. The terrace is composed of glacial outwash deposits of the Alaska Range that are underlain by till, which is in turn underlain by stratified gravel (U.S. Army Alaska 1996). Moraine features to the east and south of the Cantonment Area are composed of coarse, unstratified, and unsorted till ranging from silty gravel with sand to sandy silt with gravel. Wind-blown loess (silt and dust) of glacial origin forms a mantle over much of the Fort Greely area, ranging from several inches to greater than 5 feet thick. Discontinuous permafrost occurs from the surface to as much as 217 feet below ground surface throughout much of the region. However, permafrost was not encountered in soil borings conducted during construction in the Cantonment Area and Allen Army Airfield (U.S. Army Garrison Fort Greely 2005).

Soils

In 2003, the Natural Resource Conservation Service (NRCS) conducted a soil survey of Fort Greely. The 2005 report, *Soil Survey of Fort Greely and Donnelly Training Center, Alaska* (NRCS 2005), indicates that the soil in the 100-acre parcel, as well as in most of western Cantonment Area, is Nenana silty loam, which is a well-drained soil consisting of loamy material at depths of 10 to 40 inches underlain by sand and gravel. The soils survey description mentions no permafrost associated with this soil type (BMDO 2000).

Mineral Resources

The U.S. Department of the Interior and DoD consider Fort Greely to have low to moderate potential for leasable minerals (i.e., coal, oil, and gas). Readily accessible sand and gravel occur along the drainages and floodplains of Jarvis Creek, Granite Creek, and the Delta River. A large

gravel pit, used for recent runway construction, is located adjacent to the Allen Army Airfield. There are no known mineral resources within the project area. (BMDO 2000).

Geologic Hazards

Fort Greely lies within a seismic zone that extends from Fairbanks southward through the Kenai Peninsula. Although earthquake epicenters are located throughout Fort Greely and surrounding areas, past studies do not indicate a concentration of seismic events in the area, and serious damage has not been reported. Fort Greely lies in seismic Zone 3, where there is a 10 percent probability of major earthquake damage occurring at least once every 50 years (BMDO 2000).

3.6 Hazardous Materials and Waste Management

Region of Influence

The ROI for hazardous materials and hazardous waste management includes the Fort Greely infrastructure, existing facilities within the Cantonment Area, as well as the facilities proposed under this project.

Affected Environment

All hazardous materials management activities would be consistent with current Fort Greely procedures for the use and storage of hazardous materials at the installation (BMPs), such as the *U.S. Army Garrison Fort Greely, Alaska Spill Prevention and Response Plan* (Feb 2006) and *U.S. Army Garrison Fort Greely, Alaska Storm Water Pollution and Prevention Plan* (July 2005) and emergency response procedures. Disposal for all construction-generated hazardous waste is the responsibility of the general contractor, and would be sent to a licensed disposal location. It is anticipated that the amount of hazardous waste generated will be below the thresholds established by EPA for Conditionally Exempt Small Quantity Generators.

Several organizations assigned to support the Fort Greely mission use or store hazardous materials. All aspects of hazardous materials and regulated waste management are regulated by AR 200-1 at all Army facilities. In addition, the *Hazardous Waste and Hazardous Materials Standard Operating Procedure Manual* for Fort Greely was prepared in September 1995 (updated June 2006) and complies with all applicable state and Federal regulations (refer to Chapter 2). The manual establishes standard operating procedures for the correct management, storage, and generation of hazardous materials and hazardous waste. Hazardous material inventories are reviewed and updated twice a year if necessary.

The *Final Environmental Sites Decision Document Fort Greely, Alaska* (U.S. Army Garrison Fort Greely 2006b) summarizes results of remedial investigations of contaminated sites on Fort Greely. Within the 100-acre project area are some "further action required" contaminated sites that are included in the Army's IRP. The sites in the vicinity of Alternative 2 location include the Alyeska Fuel Spill (a no new drinking well area); the Robin Road fuel spill (BRAC parcel ID 30), an IRP site; and the undeveloped area UST (BRAC ID 118), a compliance restoration site. Sites in the vicinity of Alternative 3 include: Landfill #1 (BRAC ID 31), an IRP site; a fenced salvage area (BRAC ID 112), a compliance restoration site; and Landfill #2 (BRAC ID 32), an IRP site. No sites on Fort Greely have been listed on the CERCLA National Priorities List. These sites are excluded from the lease and will not be disturbed during construction of the proposed project. GDP would install orange snow fencing around the IRP sites to provide a visual exclusionary zone.

3.7 Land Use

Region of Influence

The ROI for land use includes lands within and adjacent to the project area that could potentially be disturbed by the construction, infrastructure improvement, and/or operation proposed under this project.

Affected Environment

Land use can be defined as the human use of land resources for various purposes including economic production, natural resources protection, or institutional uses. Land uses are frequently regulated by management plans, policies, ordinances, and regulations that determine the types of uses that are allowable or protect specially designated or environmentally sensitive uses. Fort Greely is located in neither a municipality nor a borough, and there are no local zoning or land use policies. There are also no state zoning or land use plans or guidelines for the area.

The vegetation on the land around Fort Greely is comprised of forests, tundra, or wetlands and serves as a military training range (Donnelly Training Area). Most development occurs to the north, on the Richardson Highway in Fairbanks, with some small settlements along the highways at Delta Junction, Big Delta, Richardson, Alrich, and Birch Lake. Alyeska Pipeline Service Company maintains a 60-foot wide ROW around the TAPS pipeline, which parallels the Richardson Highway and passes through Fort Greely. A pumping station (Pump Station 9) for TAPS is located 2.5 miles southwest of the Cantonment Area (U.S. Army Garrison 2005). Adjacent to and east of TAPS is the 50-foot ROW for the Trans Alaska Gas System, the pipeline for which has not been built. Currently, no plans exist to commence construction of the gas pipeline, but the project could begin in the future (U.S. Army Corps of Engineers 2006).

The Cantonment Area encompasses approximately 870 acres. The 100-acre parcel selected for development is located on the west side of the Cantonment Area. Land use in this activity center includes natural areas, industrial, mixed use, residential, parks and recreation, and entry area (gates). In general, housing is located in the southern portion of the Cantonment Area; support, administrative, and light industrial uses are located in the central to northern portion of the Cantonment Area; and heavy industrial uses are located to the north (U.S. Army Garrison Fort Greely 2005). Land use in the proposed project area under both action alternatives consists of mainly natural area with some parks and recreation nearby (U.S. Army Garrison Fort Greely 2005).

Fort Greely staffs a fire station, located in the Cantonment Area, to support the current MDA mission and airfield safety. In addition, the Fort Greely Fire and Emergency Services Department provides fire and emergency response to the surrounding areas when requested. To assist in emergency response, Fort Greely maintains cooperative agreements with most of the small communities within a 100-mile radius of the installation (U.S. Army Garrison Fort Greely 2005).

3.8 Noise

Region of Influence

The ROI for noise includes the project area and the adjacent Cantonment Area that could potentially be affected by noise from the proposed project.

Affected Environment

Noise is typically defined as a sound that is undesirable because it interferes with speech communication and hearing, intense enough to damage hearing, or is otherwise annoying. Descriptors used to compare noise levels over different time periods help assess and correlate the

various effects of noise on humans and animals, including annoyance, land-use compatibility, speech interference, hearing loss, sleep interference, and startle effects. Typical noise sensitive land uses include: residences, schools, medical facilities, and churches. Few sensitive noise receptors are known to exist on Fort Greely; the nearest to the proposed project area is the Fort Greely Middle School located in the central Cantonment Area.

The Army's Environmental Noise Management Program, described in AR 200-1, is the primary tool that the Army used to analyze and manage noise generated from Army activities. The goal of this program is to help protect the health and welfare of people on and off installations affected by Army-produced noise. The Army uses the day-night average sound level (DNL) to quantify the noise environment on Army installations. The accepted standard unit for the measure of the amplitude of sound is the decibel. A-weighted decibels (dBA) measure A-weighted sound levels, which approximates the frequency response of the human ear. Noise is described in further detail in the *BAX CACTF FEIS* (U.S. Army Alaska 2006) and the *GMD VOC Supplemental EA* (MDA 2002b).

In addition to using DNL, environmental noise assessments often also rely on the Continuous Equivalent Sound Level (L_{eq}), the Maximum Instantaneous Sound Pressure Level (SPL) (L_{max}), and the sound exposure level. The L_{eq} is defined as the continuous equivalent sound level; a single SPL that, if constant over the stated measurement period, would contain the same sound energy as the actual monitored sound that is fluctuating in level over the measurement period. The L_{eq} always has a designated time period, and an L_{eq} for 30 minutes would be denoted as $L_{eq(30\ min)}$. The L_{max} is the highest SPL measured during a noise event (U.S. Army Alaska 2006).

Principal noise sources at Fort Greely include vehicular traffic and military activities, including aircraft landing and takeoff and weapons testing at the adjacent Donnelly Training Areas. The frequency and duration of noise from military activities varies, depending on the training schedules (MDA 2002b).The noise levels on the ground from a helicopter at 250 feet altitude is 95 dBA, whereas tracked vehicles used for trail maintenance typically generate noise levels up to 105 dBA. Noise from weapons testing at Donnelly Training Areas adjacent to Fort Greely typically ranges from 112 to 190 dBA (MDA 2002b). Under certain conditions, a low level droning noise (approximately 55 dBA) from a nearby TAPS pumping station's jet turbine engines can be heard (MDA 2002b).The area surrounding Fort Greely is sparsely populated, and thus, based, would be expected to have a background noise level of DNL less than or equal to 55 dBA.

3.9 Public Access and Recreation

Region of Influence

The ROI for public access and recreation includes the project area and the adjacent Cantonment Area that could potentially be affected by the proposed project.

Affected Environment

Due to National Security reasons, no unrestricted public access is allowed on Fort Greely. In addition, due to the limited overall size of Fort Greely and due to numerous areas determined to be excluded from recreational activities for safety (Allen Army Airfield), security reasons (Missile Defense Complex) or areas damaged in the 1999 Donnelly Flats wild land fire that impacted Fort Greely; few recreational areas remain. The majority of recreational activities take place on the adjoining East Donnelly Training Area, West Donnelly Training Area, or the Gerstle River Training Area.

Recreation within Fort Greely is limited to community activities within the Cantonment Area. No hunting is currently permitted on Fort Greely property (MDA 2002b). Beyond the boundary of

the installation, the many recreational activities include hunting, fishing, trapping, off road vehicle use, hiking, backpacking, camping, boating, bicycling, wildlife watching, and skiing (U.S. Army Garrison Fort Greely 2005).

3.10 Socioeconomics

Region of Influence

The ROI for the socioeconomic analysis includes the three largest communities within the Delta region: Big Delta, Delta Junction, and Fort Greely, all of which are in the Southeast Fairbanks Census Area. The Delta region is centered on the confluence of the Delta and Tanana rivers near the junction of the Richardson and Alaska highways.

Affected Environment

Socioeconomics describes a community by examining its social and fiscal characteristics. Several demographic variables may be analyzed in order to characterize the community, including population size, the means and amount of employment, and income creation. In addition, socioeconomics analysis may address the economic condition of local government and the allocation of the assets of the community, such as its schools, housing, public services, and healthcare facilities (U.S. Army Garrison Fort Greely 2005).

Within the Delta Region, the City of Delta Junction is the only incorporated community in the area. Fort Greely has delineated borders, but the rest of the area is poorly defined. The Census Area is within the boundaries of Doyon, Ltd., which serves as the regional Alaska Native, for-profit corporation in the Delta region, pursuant to the 1971 Alaska Native Claims Settlement Act. Tanana Chiefs Conference, Inc. is the Alaska Native non-profit corporation for the Census Area, in charge of advancing tribal self-determination and enhancing regional native unity. The Tanana Chiefs works toward meeting the health and social service needs of over 15,000 Alaska Natives in interior Alaska.

Short term workers on the GMD project commute to Fort Greely from Fairbanks due to lack of available lodging on Ft Greely and in the Delta Junction area. Long term workers assigned to Fort Greely attempt lodging on Fort Greely or within the Delta Junction area.

Demographics

The Alaska Native population within the ROI in 2000 was relatively small, with Fort Greely having the lowest density of the three communities at 2.0 percent whereas Delta Junction and Big Delta had Alaska Native populations of 5.6 percent and 2.1 percent, respectively in 2000 (DCCED 2006b). The Alaska Native population in the Census Area has increased 3.9% since 1990 (DCCED 2006a).

Delta Junction has a higher percentage of Caucasian individuals and a lower proportion of Alaska Native, black, and Hispanic individuals as compared to statewide averages (U.S. Army Alaska 2006). Recently, there has been an influx of Russian immigrants to the area, generally consisting of large, young families. The Census 2000 counted 381 people of Russian and Ukranian decent in the Census Area. The Delta/Greely School District counted between 27 and 31 percent of the students as native Russian-Ukranian speakers (Alaska Department of Labor [ADOL] 2002).

Population

The military and dependent population at Fort Greely peaked in 1982 with just over 2,000 persons and declined to approximately 747 (active duty and civilian) persons on the day that Fort Greely was selected for realignment (February 28, 1995) (U.S. Army Alaska 1999). Uniformed personnel on Fort Greely were dramatically reduced when the BRAC forced their transfer to Fort

Wainwright. Initially, the BRAC caused major unemployment and reduced property value in the Census Area.

The impact of the downsizing of Fort Greely on the Delta region's population is reflected in the census data. The overall population in the Census Area increased approximately 7.3 percent between 1990 and 2000, whereas the rest of the state of Alaska's growth was nearly twice that, at 14 percent. Fort Greely's share of the Census Area population fell from 52.2 percent (or 1,299 of 5,913 total individuals) in 1990 to 22.5 percent (or 461 of 6,174 total individuals) in 2000 (U.S. Census Bureau 2006). Populations in the remainder of the ROI for 2000 were: Big Delta, 749 and Delta Junction, 840 (DCCED 2006b).

By 2004, personnel on Fort Greely had been reduced to 161, of which only seven were active duty military. However, recent (2006) estimates show that populations levels are increasing at Fort Greely (over 800 residents) and Delta Junction (1,047) (DCCED 2006b). The population within the Census Area has increased by 7.1 percent from April 1, 2000 to July 1, 2005, exceeding the growth in the State of Alaska by 5.9 percent (U.S. Census Bureau 2006).

Employment

The federal government has steadily been the Delta region's largest employer, emphasizing the lack of diversity in the economy of the ROI. In 1987, the military at Fort Greely accounted for 69 percent of Delta region employment, but by 1994, that percentage had dropped to 57 percent, or about 750 direct jobs (U.S. Army Alaska 1999). As of 2003, Fort Greely still ranked as the number one employer in the Delta region, despite the drop in its annual average employment to 142 jobs (Delta Regional Economic Development Council 2004).

The Delta/Greely School District is the second-largest employer in the area, having provided 134 jobs annually in 1995 and 115 jobs in 2003 (Delta Regional Economic Development Council 2004 and ADOL 2002). Other major employers in the region include construction and professional services, and the IGA Foodliner store, the State of Alaska (Delta Agricultural Project and Delta Junction State Bison Range) as well as Alyeska Pipeline Service Company (the TAPS and associated Pump Station 9), (Delta Regional Economic Development Council 2004 and ADOL 2002). The highways provide tourism-related employment (i.e., lodging, dining, gifts) during the summer months, serving the transient tourists passing through on the Alaska and/or Richardson Highways (BMDO 2000). Currently, the Pogo Mine is another large-scale employer in the area.

Unemployment in 2000 was 11.6 percent for Delta Junction, 24.7 percent for Big Delta, and 3.2 percent for Fort Greely. The number of residents 16 years and over not in the labor force was 47.7 percent for Delta Junction, and 61.1 percent for Big Delta (U.S. Census Bureau 2006).

The Census Area is currently experiencing major economic expansion with low unemployment and rising property values, largely due to several new projects in the area like Fort Greely's GMD System and the Pogo mine (U.S. Army Alaska 2006).

Estimates based on the *Fort Greely Summary Development Plan* (U.S. Army Alaska 2003) indicate that the majority of personnel working on the installation between 2005 and 2008 would be government civilians and contractors working for GMD. Out of 645 workers there would be approximately 525 civilians and 120 military (U.S. Army Garrison Fort Greely 2005). The GMD-related influx of personnel (an estimated 25% of which would have accompanying families) must rely upon the local infrastructure (i.e., schools, local businesses, and medical services) in the Delta Junction area, which is presently unable to provide an adequate level of community support (City of Delta Junction 2002). For this reason, Delta Junction has received almost $20 million in federal funds related to the GMD (DCCED 2006b). During the construction phase of the Pogo

Mine project (currently ongoing), the work force is expected to number about 700. During the mine's operation phase, Pogo is expected to employ about 300 workers (DCCED 2006b).

Retail Sales

Retailing within the ROI is limited to the IGA Foodliner store, small convenience stores (usually combined with a gas station), and tourism-related retailing, including bars and restaurants. The nearest variety retailing center to the ROI is Fairbanks (BMDO 2000). Approximately 20,000 tourists register annually with the Delta Junction Visitors Center. On average, 60,000 passenger vehicles cross the Alaska-Canada border annually and enter Alaska at the town of Alcan. Annually, an average of 80,000 vehicles travels through Delta Junction via the Alaska Highway.

Income

In 1990, the median household income in Big Delta was $32,813 with 23 percent of the resident families having an income below the poverty level, while in Delta Junction the median income was $31,250, with 8.4 percent below the poverty level (U.S. Army Alaska 1999). According to 2000 Census data, Big Delta had a median household income of $49,000 with 30 percent of individuals living below the poverty level. Delta Junction had a median household income of $43,500 with 19.4 percent of individuals below the poverty level (U.S. Army Garrison Fort Greely 2005).

Census 2000 data for Fort Greely indicated median incomes of $33,750 and 10.4 percent below the poverty level (U.S. Army Garrison Fort Greely 2005). For FY05, Fort Greely's military and civilian payroll was estimated at nearly $20 million. Military construction for FY05 was estimated at over $45 million (DCCED 2006b).

Nearly 40,000 acres are farmed in the Delta area, producing barley, other grains and forage, potatoes, dairy products, cattle and hogs (DCCED 2006b). The Delta region of the Tanana Valley is one of two of Alaska's farming regions, the other being the Matanuska-Susitna Valley. In 2001, farm production in the Delta region was valued at over $7.5 million, the highest in over 12 years (ADOL 2002). Delta region farmers also receive cash farm subsidies and conservation program payments from the federal government, which, in 2001 amounted to nearly $1.3 million (ADOL 2002).

The bison herd and Delta Junction State Bison Range (established 1979) make an important contribution to the economy of Delta Junction. About 40 hunting parties travel to Delta Junction each year to hunt bison. Each group spends about $300 in the community on lodging, gasoline, meals, and groceries. In addition, the bison range appropriation has been used to pay nearly $1 million to local businesses for habitat development. Salaries for bison range staff also contribute to the local economy (Alaska Department of Fish and Game [ADF&G] 2006).

Housing, Education, Health

In 1990, the median home value in Delta Junction was $86,000; in Big Delta it was $55,000; and in Fort Greely, was $17,500 (DCCED 2006b). The 1990 vacancy in these communities was: 40 percent in Delta Junction, 28 percent in Big Delta, and 7.4 percent in Fort Greely (1 percent of occupied homes were owned, 99 percent were rentals) (DCCED 2006b). By 2000, the median home value in Delta Junction was $92,800; in Big Delta $94,400; and on Fort Greely it was $0 (100 percent of occupied homes were rentals) (DCCED 2006b). The 2000 vacancy in these communities dropped in Delta Junction, remained nearly the same in Big Delta, and rose in Fort Greely at 26 percent, 29 percent, and 64 percent, respectively (DCCED 2006b).

While there are no statistics available regarding home values in 2006, realtors in the Delta Junction area indicate that value increased, as a result of new construction projects that increased housing demand (U.S. Army Alaska 2006).

The Delta/Greely School District includes five schools, one of which is on Fort Greely. The district's enrollment peaked in 1993 at 1,006 students (ADOL 2002). In 1995, 48 percent (887 individuals) of the Delta/Greely School District students were dependents of uniformed military personnel and federal civilian workers on Fort Greely (U.S. Army Alaska 1999). In 2000, the enrollment dropped to its lowest at 609 students, and the school on the installation was closed (ADOL 2002). The school was later reopened and currently enrolls 168 students in grades 6-8 (Great Schools, Inc. 2006)

Fort Greely and Delta Junction are in need of adequate medical care. The Delta region residents and personnel at Fort Greely currently depend on one doctor in the town of Delta Junction (Dr. Andreassen) at the Delta Junction Medical Center who maintains over 8,000 patient files. Prior to the 1995 BRAC realignment, a local Troop Medical Clinic was in service on Fort Greely. The Troop Medical Clinic was not reopened despite the increase in activity on Fort Greely since 2003, and only one small clinic is currently available on Fort Greely. Since 2000, the population in Fort Greely alone has increased by approximately 1,000 personnel, Army civilians, contractors, and dependents (U.S. Army Corps of Engineers 2006). It is expected that the population on Fort Greely increase another 500 individuals in the future. The U.S. Department of Health currently lists the Southeast Fairbanks Census Area as a Medically Underserved Area, which means that: The population to primary care physician ration exceeds 3,000:1; the population demonstrates an "unusually high need[1]" for primary care services; and primary care professionals in contiguous areas are over utilized, excessively distant, or inaccessible to the population (U.S. Army Corps of Engineers 2006).

Fiscal Condition

For FY 2005, the city budget for Delta Junction is approximately $1,000,000, with a comparable income arising predominately from Federal Payment in Lieu of Taxes, local service charges, and state sources (Hallgren, 2005 *in* U.S. Army Garrison Fort Greely 2005).

3.11 Transportation

Region of Influence

The ROI for the transportation analysis includes the Richardson Highway in the vicinity of Fort Greely, the Alaska Highway at Delta Junction, and Fort Greely installation roads.

Affected Environment

Transportation on and around Fort Greely consists of roadway and airway traffic. The principal issue to be addressed in this section is the potential for increased traffic and its influence on capacity. Traffic in the ROI is discussed in detail in the *Fort Greely Installation, Fort Greely, Alaska EA* (U.S. Army Garrison Fort Greely 2005).

Fort Greely is accessible via the two-lane Richardson Highway, which runs north–south connecting Fairbanks and Valdez. From the Richardson Highway, vehicles enter Fort Greely through the Main Security Gate, located at Big Delta Road, the primary east–west roadway on

[1] "Unusually high need" is defined as: a) more than 100 births per year per 1,000 women age 15-44 years, b) more than 20 infant deaths per 1,000 live births, or c) more than 20% of the population (or of all households) with incomes below the poverty level (U.S. Department of Health).

Fort Greely. The other major highway in the area is the two-lane Alaska Highway, which runs east–west connecting Delta Junction with the Canadian–American border.

Roads serving the Cantonment Area generally are paved and in good condition. There is currently no traffic information for roadways on the installation. The area surrounding Fort Greely is sparsely populated with a moderate traffic flow. In 1997, the Richardson Highway in the vicinity of Fort Greely experienced an average annual daily traffic of 1,750, while the Alaska Highway at the Richardson Highway junction had an average annual daily traffic of 3,350 (BMDO 2000). Currently, the Richardson Highway in the vicinity of Fort Greely and the Alaska Highway at Delta Junction occasionally experience a change in level of service in the summer months due to tourism.

The Allen Army Airfield area is controlled as Federal Aviation Administration Class D airspace airfield, which supports two to three flights per week, all of which are military. Currently, there is no railway connection to Fort Greely; however as described in Section 4.1, a railway extension project to connect Fort Greely and North Pole is in progress.

3.12 Utilities

Region of Influence

The ROI for utilities includes the service areas of each utility provider servicing Fort Greely.

Affected Environment

Utilities are described in detail in the *Fort Greely Alaska EUL Project Notice of Intent to Lease (NOL)* (U.S. Army Corps of Engineers 2006).

Water

The principal potable water supply at Fort Greely is currently managed from Building 606, the Central Heating and Power Plant (CHPP). There are 14 producing potable wells throughout the installation. Two groundwater wells with a combined capacity of 1.1 million gallons per day are used to supply all of the existing building facilities and fire hydrants within the main Cantonment Area. From these wells, the water is pumped to the drinking water treatment facility, chlorinated and fluoridated, and tested regularly. An 188,000-gallon storage tank is located in Building 606 and feeds a variable frequency drive pump skid that pumps into a piped water system.

Wastewater

The sewage system at Fort Greely has a capacity of 0.46 million gallons per day and is operated by Fort Greely's operations and maintenance Base Operations Support contractor (i.e. Chugach Allutiq) with Department of Public Works oversight.

The level of wastewater usage, when all buildings were in use is less than 0.32 million gallons per day. Sewer lines convey wastewater to an Imhoff (septic) tank inside Building 633. Sludge from the bottom of this tank is pumped to sludge drying beds. Once the sludge is dried, it is disposed in the existing landfill. Effluent from the Imhoff tank is conveyed to the sewage lagoon, where it is aerated for further treatment. Effluent leaving the sewage lagoon is disinfected by chlorination before discharge to Jarvis Creek under a NPDES permit held by Fort Greely. Monitoring and sampling of the effluent is conducted daily by the Base Operations Support contractor. All wastewater facilities are in excellent condition (U.S. Army Corps of Engineers 2006).

Solid Waste

Current solid waste management operations consist of solid waste collection, volume reduction by open pit burning, and final disposal (including ash) in the landfill. The previous Fort Greely

landfill was retired; however, through a lateral expansion, Permit 0233-BA005 (which expires on 1 January 2008) allows for an Alaska Class II Municipal Solid Waste Landfill. This landfill area is currently permitted to receive septage, ash, asbestos materials, sludge, and construction debris (U.S. Army Corps of Engineers 2006). In addition, the City of Delta Junction operates a Solid Waste Landfill under a permit issued by the State of Alaska. This facility is located approximately 3 miles south of the intersection of the Richardson Highway and Big Delta Road.

Electricity

Electrical power requirements at Fort Greely are currently met through a combination of power supplied from Golden Valley Electric Association (GVEA) and on-post generators run by Fort Greely personnel. The GVEA is a nonprofit, member-owned cooperative, located in North Pole, that provides electrical service to the Fairbanks North Star Borough, the Denali Borough, unincorporated areas between these two boroughs, and along the Richardson Highway to Fort Greely (BMDO 2000).

The GVEA inbound feed from the Jarvis Creek Substation located in Delta Junction is rated at 24,900 volts in a 'wye" configuration. Upstream of the existing step-down transformer, a new takeoff point would be installed to provide primary electrical power to the proposed medical/lodging facility. The existing step-down transformer (owned by GVEA), located on the east side of the installation CHPP is rated at 3.0 megavolt amperes (MVA). The current average daily electrical demand at Fort Greely is greatly affected by seasonal load and weather. Seasonal load fluctuations vary from 1.9 megawatts (MW) in the summer to 4.2 MW with an average of approximately 3.0 to 3.3 MW (Whitley, J. 2006). When the demand at Fort Greely exceeded the capacity of the substation, additional power requirements are met by the five stationary diesel-powered generators (3 x 1.0 MW sets and 2 x 1.25 MW sets), which together can generate a total of 5.5 MW (Whitley, J. 2006). At any one time, one of the five generators is typically undergoing maintenance rebuild and upgrade.

Other

Steam heat is provided to Fort Greely by the CHPP through a steam utilidor distribution system.

3.13 Vegetation

Region of Influence

The ROI for vegetation would include the area disturbed by the footprints of the facilities, parking lots, access roads, and utilidor.

Affected Environment

The predominant vegetation on Fort Greely and the adjacent region is low growing spruce forest, which is common throughout Interior Alaska. Lowland black spruce interspersed with heath bog communities covers a large portion of Fort Greely. Dominant tree species are black spruce, aspen, and balsam poplar. The understory and groundcover consist of mountain cranberry and bog blueberry, marsh Labrador tea, crowberry, and a variety of mosses and lichens (U.S. Army Garrison Fort Greely 2005).

Native vegetation was removed from most of the Cantonment Area during the 1950s. A few isolated pockets of forest remain, particularly north of Big Delta Road and east of the housing area (U.S. Army Garrison Fort Greely 2005). Interior Alaska's vegetative pattern is largely influenced by fire. Between 1956 and 1987, 60 known fires burned over 150,000 acres on Fort Greely and the Donnelly Training Area/Delta Junction area (U.S. Army Garrison Fort Greely 2006a). The 1999 18,000-acre Donnelly Flats wildfire burned through the Fort Greely area,

destroying much of the vegetation within Fort Greely and the proposed 100-acre parcel. Consequently, the habitat types in the burned areas are now in an early successional stage consisting mostly of bare soil, grasses, and saplings (U.S. Army Garrison Fort Greely 2005).

There are no federally-listed threatened, endangered, or candidate plant species on Fort Greely but there are some rare, uncommon, or priority species (U.S. Army Alaska 2002). A vascular flora inventory of Fort Greely was conducted by Racine et al. (2001), which identified rare plant species, but because the inventory was conducted prior to 2002, it includes the Donnelly Training Area. There currently is no definitive list of Alaska Natural Heritage Program (ANHP)-listed rare species for just the Fort Greely installation. Rare plant species are monitored by the ANHP, which maintains a Biological Conservation Database for interior Alaska (species of concern, rare).

3.14 Visual Resources and Aesthetics

Region of Influence

The ROI for aesthetics at Fort Greely includes the general visual environment surrounding the installation as well as areas visible from offsite locations.

Affected Environment

Visual resources include the natural and man-made features that give a particular environment its aesthetic quality. The analysis considers visual resource sensitivity, which is the degree of public interest in a visual resource and concern over adverse changes in the quality of the resource.

The visual environment on Fort Greely consists of relatively flat terrain, with surface elevations ranging from 1,330 feet to 1,360 feet. The dominant visual features around Fort Greely include views of Mt. Hayes and the Alaska Range and the TAPS. Most views onto the base from the Richardson Highway are screened by some forested areas. Due to the existing structures that dominate the Cantonment Area of the installation and sparse population of the region, Fort Greely has a relatively low visual sensitivity (BMDO 2000).

3.15 Water Resources

Region of Influence

The water resources ROI includes all surface water features, drainage areas, and underlying aquifers that could be affected by construction or operations and maintenance within the proposed project area. This includes the entire area within the Fort Greely boundary (U.S. Army Corps of Engineers 2006).

Affected Environment

Water resources on Fort Greely are managed according to the *Water Resources Management Program* described in AR 200-1.

Surface Water

Fort Greely is situated between Jarvis Creek on the east and the Delta River on the west. The installation's surface drainage is flat and not well defined, although generally Fort Greely storm overflow runs north and east to Jarvis Creek. The proposed project area is not located directly adjacent to either of these surface water bodies and only the upper reaches of the Delta River (south of the project area) are designated as part of the National Wild and Scenic River System (U.S. Army Alaska 1999). Most of the storm water runoff infiltrates before it reaches a water body, due to the relatively flat terrain and permeable soils in the project area. Additionally, Fort Greely operates under an NPDES Multi-Sector Industrial Storm Water Permit and SWPPP

(Johnson,D. 2006), which identifies two outfalls from the main Cantonment Area-one into Jarvis Creek the other within 600-700 feet of Jarvis Creek.

Groundwater

One water-bearing unit has been described in the ROI. This unit consists of a lower stratified gravel layer extending at least 170 feet below ground surface. One boring completed at Fort Greely penetrated the alluvium to depths of 400 feet below ground surface. The lower stratified gravel aquifer has been reported to be overlain by low-permeability lenses and intermittent seams that may result in the formation of perched water zones (BMDO 2000).

The groundwater flows in a northeasterly direction at a gradient ranging from approximately 5 to 21 feet per mile. Groundwater in the area is recharged continuously by the Delta River and by infiltration of meltwater from the Alaska Range in the late spring and early summer. The depth to groundwater ranges from 175 feet to at least 300 feet below ground surface, and fluctuates in response to seasonal recharge (BMDO 2000). There are 14 producing potable wells throughout the installation. As described in Section 3.12, two wells with a combined capacity of 1.1 million gallons per day supply the Cantonment Area with drinking water. The *Water Quality Report for Calendar Year 2005* for Fort Greely (U.S. Army Garrison Fort Greely 2006c) indicates no violation for any contaminant in the drinking water on the "Main Post" (Cantonment Area).

3.16 Wildlife

Region of Influence

The ROI for wildlife includes lands within the Fort Greely installation that could be potentially disturbed by the construction, infrastructure improvement, and/or operation proposed under this project.

Affected Environment

The Army monitors important and sensitive indicator species (those that play important ecological roles) on Fort Greely as required by Public Law 106-65 as mitigation for the land withdrawal legislative EIS (U.S. Army Alaska 1999) and Public Law 86-797 to implement the INRMP (U.S. Army Alaska 2002). These species include salmon, moose, bison, bears, goshawks, wolves, small mammals, and migratory birds. Game monitoring includes species such as ruffed grouse, moose, bison, black bears, and wolves.

Wildlife

At one time nine species of mammals were identified on Fort Greely, with an additional 26 species possibly being present. Currently, due to the multiple security fences around Fort Greely, the presence of large mammals is unlikely within the fenced areas of the installation (approximately 85 percent of the installation is fenced); however, they may be present outside of the security fences (Mason 2006). Moose are the most visible wildlife species, and some occur within the fenced areas and could be found in the project area. Hunting and trapping are not allowed on Fort Greely. Large predators including grizzly and black bears, wolves, foxes, martens, and coyotes may also be found in the unfenced areas. Some of these predators such as fox, coyotes, wolverine, and marten are found within the security fenced areas. Smaller mammals that may be found on Fort Greely include mink, muskrat, snowshoe hare, beaver, arctic ground squirrel, red squirrel, and little brown bat.

Birds

Seventy avian species have been identified on Fort Greely, with an additional 24 species likely to be present (Mason 2006). Several small game and related bird species are found on Fort Greely

including willow ptarmigan and spruce, sharp-tailed, and ruffed grouse. Some common non-game (migratory and resident) birds observed on the installation include the alder flycatcher, American kestrel, hawk owl, great-horned owl, yellow-rumped warbler, common redpoll, dark-eyed junco, hairy woodpecker, red-tailed hawk, mew gull, gray jay, common raven, black-capped chickadee, American robin, hermit thrush, Swainson's thrush, Bohemian waxwing, snow bunting, black backed woodpeckers, and cliff swallows.

There are no federally listed threatened, endangered, or candidate wildlife species in the project area but some species are listed by other agencies for the purposes of protection. The American peregrine falcon (*Falco peregrines anatum*) was de-listed from endangered species status in 1999. It is unlikely that the falcons nest at Fort Greely, but nests have been found on bluffs above the Delta River 6 miles to the southwest of the proposed project site. Although the falcon is de-listed, the USFWS requests that the Army continue consultation on any project that may hinder their recovery. The bald eagle (*Haliaeetus leucocephalus*), common throughout Alaska, is federally listed only in the Lower 48 states. Two species considered sensitive by the U.S. Forest Service have been confirmed at Fort Greely, but would not be present in the project area due to their habitat preferences: the trumpeter swan (nests on wet vegetation) and the osprey (nests near fish-bearing waterbodies). The four passerine species listed as species of special concern by the State of Alaska on Fort Greely are the olive sided flycatcher, gray-cheeked thrush, Townsend's warbler and blackpoll warbler. The State of Alaska lists species as special concern for the purpose of habitat protection. These four migratory birds generally nest in coniferous forests like those that surround the Cantonment Area, and the olive sided flycatcher is also found in forest burns and mixed open forest areas, both of which occur in the project area. The gray-cheeked thrush nests in dense stands of alder or willow mixed forest, which is found within the project area. All but Townsend's warbler are also listed by USFWS on their list of *Migratory Nongame Birds of Management Concern in the United States*. Although there are no legal requirements for managing these species of special concern, all migratory bird species are afforded protection from nesting disturbance under the Migratory Bird Treaty Act (U.S. Army Alaska 2002).

Amphibians and Reptiles

Wood frogs are the only amphibians found on Fort Greely. The frogs inhabit marshes and riparian areas, and are therefore not expected to be found in the proposed project area. There are no reptiles in Alaska.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

This section provides an evaluation of the impacts or potential impacts of each of the alternatives on the resources selected for detailed analysis (refer to Section 1.6.1)

4.2 Methodology

For each resource selected for detailed analysis direct, indirect, and cumulative impacts have been described. Direct impacts are defined by NEPA and CEQ regulations as being caused by the action and occurring at the same time and place as the action, typically arising during the construction phase (e.g., the removal of vegetation) [40 CFR 1508.8(a)]. Indirect impacts are reasonably foreseeable impacts caused by the action but occur later in time or are further removed from the project site than the direct impacts (e.g., future vehicle emissions due to traffic increase) [40 CFR 1508.8(b)]. Cumulative impacts result from the action's incremental impacts when these impacts are added to the impacts of other past, present, and reasonably foreseeable future actions [40 CFR 1508.7].

The impact analysis was based on standardized impact definitions. Impacts identified for each resource brought forward are based on the duration, extent, intensity, and type of the impact. Summary impact levels (characterized as negligible, minor, moderate, or major) are given for each impact topic (issue). The type of impact refers to whether the impact is considered beneficial or adverse. Beneficial impacts would improve resource conditions. Adverse impacts would negatively alter or deplete resources. Impact level thresholds are defined in Table 4-1.

Table 4-1 Impact Level Thresholds

Impact Level	Negligible	Minor	Moderate	Major
Intensity	Little or no impact to the resource would occur; any change that might occur may be perceptible but difficult to measure.	Change in a resource would occur, but no substantial resource impact would result. The change in the resource would be perceptible but would not alter the condition of the resource.	Noticeable change in a resource would occur and this change would alter the condition or appearance of the resource, but the integrity of the resource would remain.	Substantial impact or change in a resource area would occur that is easily defined and highly noticeable, and that measurably alters the condition or appearance of the resource.
Extent	None	Localized – Impact would occur only at site or its immediate surroundings, and would not extend into the region.	Regional – Impact would affect the resource on a broad regional level, extending well beyond the immediate site.	Statewide – Impact would affect the resource on a state or national level.

Impact Level	Negligible	Minor	Moderate	Major
Duration	None	Temporary – Impact would occur only during project construction. After construction, the resource conditions would return to pre-construction conditions.	Short-term – Impact would extend beyond the time of construction, but would not last more than two years.	Long-term – Impact would likely last more than two years and may continue beyond the lifetime of the project.

4.3 Direct and Indirect Impacts by Resource Category

4.3.1 Air Quality

4.3.1.1 No-Action Alternative

There would be no impacts to air quality under the No Action Alternative.

4.3.1.2 Alternative 2

The general area within Fort Greely is currently in attainment for all NAAQS and Alaska AAQS. All project-related construction and operations activities that are emission sources would be permitted under ADEC construction and operations air permits. Construction activities such as heavy equipment operation produce combustion byproducts (i.e., CO and particulate matter), ground disturbance generates fugitive dust, and building construction activities typically generate emissions from solvents and architectural coatings. The increase in traffic on Fort Greely during construction (about 20 vehicles per day for six months) would be responsible for temporary increases in vehicle CO emissions. However, it is not expected that construction activities would cause exceedances of the NAAQS or State of Alaska AAQS beyond the immediate construction zone and that once construction ceased, air quality would return to its former levels. The adverse impacts to air quality during the construction phase of the proposed project would be perceptible, yet temporary and localized; and therefore, minor.

Potential operational air quality impacts could occur from the operation of standby power generators, vehicular emissions, and normal maintenance-related activities. The increase in traffic on Fort Greely during operations and maintenance (200 vehicles during the summer, 75 vehicles during the winter) would be responsible for some increases in CO. The current installation emission inventory does not include traffic emissions, so it would be difficult to compare current with predicted emissions levels (BMDO 2000). However, operations and maintenance under Alternative 2 would not be anticipated to cause exceedances of the NAAQS or State of Alaska AAQS. The adverse impacts to air quality during maintenance and operations would be perceptible (minor), localized (minor), and short term (moderate), but minor overall for the reasons stated above.

4.3.1.3 Alternative 3

Impacts to air quality under Alternative 3 would be the same as those under Alternative 2 (minor) because construction and operation emissions would be the same.

4.3.2 Cultural Resources

4.3.2.1 No-Action Alternative

There would be no impacts to cultural resources under the No Action Alternative.

4.3.2.2 Alternative 2

Based on many archaeological studies performed at Fort Greely, there are no known archaeological sites within the proposed EUL project area; however, unknown subsurface cultural resources could be disturbed by construction activities. It is estimated that the depth of excavation for the facility foundation would be approximately 4 feet, for the roads and parking lots the depth would be about 2 feet, and for the utilidor the depth would be approximately 6 feet. Given the relatively small area of soils that would be affected during construction (surface area of 6.41 acres), the low probability of the presence of any cultural resources, and the presence of the existing cultural resource staff during site excavations to monitor for artifacts, the expected adverse impacts of Alternative 2 on cultural resources is expected to be negligible.

4.3.2.3 Alternative 3

The impacts to cultural resources under Alternative 3 would be the same as those under Alternative 2 (negligible) due to the low probability that cultural resources would be present within the 100-acre parcel.

4.3.3 Environmental Justice

4.3.3.1 No Action Alternative

There would be no impacts to environmental justice under the No Action Alternative.

4.3.3.2 Alternative 2

The proposed project is expected to result in changes in the socioeconomic environment of the area that would benefit minority or low-income populations or communities with the creation of nearby medical and emergency care and employment opportunities at the lodging facility.

4.3.3.3 Alternative 3

The impacts to environmental justice from Alternative 3 would be the same as under Alternative 2 (beneficial) because both alternatives would provide the same opportunities.

4.3.4 Geology and Soils

4.3.4.1 No-Action Alternative

There would be no impacts to soils or geology under the No Action Alternative.

4.3.4.2 Alternative 2

Under Alternative 2, potential impacts to soil would be associated with soil removal through construction-related activities such as trenching, excavation, and clearing of vegetation (sapling and standing dead trees) for facilities, roads, parking lots, and utilities. Permafrost has not been detected from core sampling performed within Fort Greely, so it is assumed that there would be no project impacts to permafrost. Potential impacts from major geologic hazards to people and structures would include seismic events.

Construction activities under this alternative would result in short-term but localized, and therefore minor adverse impacts to soils within the project area. It is estimated that the depth of excavation for the facility foundation would be approximately 4 feet, for the roads and parking lots the depth would be about 2 feet, and for the utilidor the depth would be approximately 6 feet. Under Alternative 2, a surface area of approximately 6.41 acres of soil would be disturbed for the project footprint, which is a small area relative to the 100-acre parcel. However, soils in most of the project area have been disturbed by previous Army activities, construction, hazardous chemical spills, and the 1999 Donnelly Flats fire. For these reasons, the impacts to soils from Alternative 2 would be negligible.

Facility construction would incorporate earthquake-resistant designs to reduce the potential impacts occurring from a significant seismic event. Adverse impacts to humans from seismic events under this alternative are therefore expected to be negligible.

4.3.4.3 Alternative 3

Impacts to soils under Alternative 3 would be the same as those described under Alternative 2 (minor) because both areas are of the same soil type, the area of disturbance would be similar (approximately 5.69 acres under Alternative 3), and the soils have been previously impacted.

4.3.5 Hazardous Materials and Waste Management

4.3.5.1 No-Action Alternative

There would be no impacts to hazardous materials and waste management under the No Action Alternative.

4.3.5.2 Alternative 2

It is expected that minimal quantities of hazardous wastes (e.g., motor fuels, waste oils, waste antifreeze) would be generated during construction and minimal quantities of hazardous materials such as herbicides and/or pesticides, motor and generator fuels, backup power batteries would likely be used during regular maintenance and operation activities. Hazardous materials and waste management would be performed in accordance with ongoing Fort Greely procedures, as well as applicable federal, state, and local regulations (U.S. Army Garrison Fort Greely 2005). Disposal for all construction-generated hazardous waste is the responsibility of the general contractor. All hazardous waste generated from the project site will be sent to a licensed disposal location. It is anticipated that the amount of hazardous waste generated would not exceed the Fort Greely small quantity generator status. GDP would install orange snow fencing around the IRP sites to provide a visual exclusionary zone. The IRP sites within the project area would not be disturbed during construction of the proposed project. For these reasons, adverse impacts on hazardous materials and waste management related to the proposed project under Alternative 2 would be mitigated and are expected to be barely perceptible and immeasurable, and therefore negligible.

4.3.5.3 Alternative 3

The impacts from Alternative 3 on hazardous materials and waste management would be the same as those described under Alternative 2 (negligible) because the construction, operation, and maintenance activities would be the same.

4.3.6 Land Use

4.3.6.1 No-Action Alternative

There would be no impacts to land use under the No Action Alternative.

4.3.6.2 Alternative 2

Potential impacts to land use typically stem from encroachment of one land use or activity on another or an incompatibility between adjacent land uses that leads to encroachment. There are no local zoning or land use policies for Fort Greely. There are also no state zoning or land use plans or guidelines for the area. Therefore, existing land uses or any land use change under the Proposed Action would not conflict with any federal, state, or local land use plans or policies.

The land use in the proposed 100-acre parcel area and within the proposed facility footprint is currently designated as "natural area", which is widespread throughout the installation (U.S. Army Garrison Fort Greely 2005). Development of the proposed project would involve a small percentage of both the available natural area and parks and recreation area on Fort Greely. Although the potential exists for land to be altered to accommodate new facilities, all construction and repair activities would be of similar nature to the existing facilities and primarily confined to within the immediate construction area. The facility complex area would be fenced in for security reasons, thereby altering, but not preventing, access to the project area. The duration of the impact to land use under Alternative 2 would be long term (major), but the extent would be localized (minor), and the intensity noticeable (moderate). Overall, Alternative 2 would produce a moderate adverse impact to land use in the project area.

4.3.6.3 Alternative 3

The land use in the proposed facility footprint is currently designated as "natural area" and "parks and recreation" (U.S. Army Garrison Fort Greely 2005). "Natural area" designation is widespread throughout the installation, but the "parks and recreation" area is confined to within the Cantonment Area. The amount of "parks and recreation" land that would be disturbed under Alternative 3 would be relatively minor compared to the amount currently available (estimated at about 60 acres), so the extent would be minor. Both the duration and intensity would be the same as under Alternative 2, producing an overall moderate adverse impact to land use from Alternative 3.

4.3.7 Noise

4.3.7.1 No-Action Alternative

There would be no impacts to noise under the No Action Alternative.

4.3.7.2 Alternative 2

During construction of the proposed project, noise sources would include the operation of heavy equipment and associated building construction noise. During maintenance and operations of the facilities, noise would stem from the sirens on emergency vehicles, general vehicle traffic, and use of standby power generators. Typical noise levels 50 feet from construction equipment ranges from 70 to 98 dBA. Restricted public access to the proposed project sites would ensure limited noise impacts to the public. The combination of increased noise levels and human activity would likely displace some small mammals and birds that forage, nest, or den within this 50-foot radius (U.S. Army Garrison Fort Greely 2005).

Principal noise sources at Fort Greely include vehicular traffic and military activities, including aircraft landing and takeoff and the occasional firing of weapons.. Given the proximity of the project area to the airfield, the Richardson Highway, and the Cantonment Area (all sources of existing noise), the adverse impact of noise generated from Alternative 2 is expected to be temporary and localized during construction (minor) and barely perceptible and immeasurable during operations and maintenance (negligible).

4.3.7.3 Alternative 3

The impacts to noise from Alternative 3 would be the same as described under Alternative 2 (negligible to minor) because the construction and operation activities would be the same.

4.3.8 Public Access and Recreation

4.3.8.1 No-Action Alternative

There would be no impacts to public access and recreation under the No Action Alternative.

4.3.8.2 Alternative 2

Due to National Security reasons, unrestricted public access is not allowed on Fort Greely. In addition, due to the limited overall size of Fort Greely and due to numerous areas determined to be excluded from recreational activities for safety (e.g., Allen Army Airfield), security reasons (e.g., Missile Defense Complex) or areas damaged in the 1999 Donnelly Flats wildland fire that impacted Fort Greely; few recreational areas remain. The majority of recreational activities take place on the adjoining East Donnelly Training Area, West Donnelly Training Area or the Gerstle River Training Area. There is no potential for increased access to Delta River and Jarvis Creek for purposes of fishing or other water-related recreation due to the spatial separation between the project area and these waterbodies. The fencing around the new facilities would alter, but not prevent, public access to the area. The adverse effects of the proposed project on public access and recreation under Alternative 2 would be barely perceptible and immeasurable, and therefore negligible.

4.3.8.3 Alternative 3

The impacts to public access and recreation from Alternative 3 would be the same as described under Alternative 2 (negligible) because the construction and operation activities would be the same. Although the fencing configuration and area around the facilities would be different than under Alternative 2, the project area is of the same recreation quality as under Alternative 2, and so the impacts would be the same under Alternative 3.

4.3.9 Socioeconomics

4.3.9.1 No-Action Alternative

There would be no direct impacts to socioeconomics under the No Action Alternative. However, the lack of adequate and nearby medical facilities would continue to burden the residents of Fort Greely, Delta Junction, and Big Delta, and the single physician located in town.

4.3.9.2 Alternative 2

This proposed project is expected to beneficially affect the general socioeconomic environment of the area (improved medical care, employment opportunities, and increased lodging opportunities) and the increased number of support service sector employment opportunities.

The need for lodging currently exists. The Fort Greely lodging facility is lacking, and the Delta Junction lodging facilities are likely near capacity, especially during the summer months, accommodating tourists and most recently, the influx of workers and dependants to the area. The GMD-related influx of personnel (an estimated 25% of which would have accompanying families) must rely upon the local infrastructure (i.e., schools, local businesses, and medical services) in the Delta Junction area, which is presently unable to provide an adequate level of community support (City of Delta Junction 2002). Short term workers on the GMD project commute to Fort Greely from Fairbanks due to lack of available lodging on Ft Greely and in the Delta Junction area. Long term workers assigned to Fort Greely attempt lodging on Fort Greely or within the Delta Junction area. The majority of temporary construction workers would be residents of Interior Alaska and would require lodging during their six months' of work. The maintenance and operations workers would be local hire, and will not require lodging.

The presence of a new medical facility on Fort Greely would provide enhanced nearby medical care and service for the Delta Junction and Fort Greely areas.

Overall, it is expected that the majority of the impacts to socioeconomics from Alternative 2 would be beneficial.

4.3.9.3 Alternative 3

The impacts to socioeconomics from Alternative 3 would be the same as described under Alternative 2 (beneficial) because the opportunities and amenities would be the same.

4.3.10 Transportation

4.3.10.1 No-Action Alternative

There would be no impacts to transportation under the No Action Alternative.

4.3.10.2 Alternative 2

The principal issue to be addressed in this analysis is the potential for increased traffic and its influence on capacity. Workers traveling to construction sites, construction of new buildings, paving, and trenching for utilities could temporarily impede road traffic in areas of construction and repair. The traffic estimate for the construction period is about 20 vehicles per day for duration of six months. As would be expected, the traffic estimates during the operations and maintenance phase are higher and more prolonged than during construction, with an estimated 200 vehicles using area roads during the summer and 75 vehicles during the winter. Predominate adverse impacts to transportation would be associated with the immediate area adjoining the intersection of the Richardson Hwy and Big Delta Road. There is no current traffic information for roadways on Fort Greely.

During both the construction and operations and maintenance phases of the proposed project, personnel would be divided into shifts, which would help alleviate any on-installation traffic problems. Construction-related traffic increases would be temporary in duration, localized in extent, and noticeable in intensity without altering the traffic capacity, and therefore minor overall. The expected traffic increases during operations and maintenance would be noticeable (minor), short-term in duration (moderate), and localized in extent (minor). The construction of new access roads from existing roads would help carry any traffic increase due to operations and maintenance, thereby serving to minimize the impacts to capacity. Currently, the Richardson Highway in the vicinity of Fort Greely and the Alaska Highway at Delta Junction occasionally experience a change in level of service in the summer months due to tourism. Because the existing condition of traffic in the area is one that fluctuates depending on the season, it is not

expected that the increases in traffic during operations and maintenance would cause any more than a minor impact to area traffic volume or capacity. Overall, it is expected that the majority of the impacts to traffic from Alternative 2 would be minor.

4.3.10.3 Alternative 3

The impacts to transportation from Alternative 3 would be the same as described under Alternative 2 (minor). In addition, there may be an increase in traffic backup on the Richardson Highway for cars exiting to Middle Post Road if no new turning lanes are installed.

4.3.11 Utilities

4.3.11.1 No-Action Alternative

There would be no impacts to utilities under the No Action Alternative.

4.3.11.2 Alternative 2

Utility services on Fort Greely (drinking water, wastewater, solid waste, communication, heat, firewater, and electricity) could be affected by the proposed project through the increase of demand, production of construction debris, and increased use of electricity, all of which could impact the existing Post utility systems. Initial analysis of utility production and demand indicates that the overall uses should not exceed the levels existing prior to the 1995 BRAC announcement, with the exception of electricity (U.S. Army Corps of Engineers 2006). According to personal communication with J. Whitley, U.S. Army Fort Greely Utilities Foreman (2006) the peak average usage of electricity has risen since 1995 due to the increased use of computers on the installation.

Water, sewer, and electricity would be extended via an utilidor to meet the new facilities' needs (U.S. Army Corps of Engineers 2006). The existing capacity of the Fort Greely sewage system is 0.46 million gallons per day, and typical installation-wide wastewater usage is less than 0.32 million gallons per day. Considering that an average family of four produces 12,000 gallons of wastewater per month (Ritchie 2006), the increase in project-related wastewater production of an estimated 240,000 gallons per month (average 50 people per day lodging, minimum of 30 full time employees) is not expected to adversely impact the existing system.

The impacts on the electricity capacity on Fort Greely would be mitigated by either tapping an existing or new electrical feeder (Whitley, J. 2006). Upstream of the existing step-down transformer, a new takeoff point would be installed to provide primary electrical power to the proposed medical/lodging facility. Solid waste generated from the construction and operation of the new facilities would be disposed at the City of Delta Junction Solid Waste Facility, to avoid impacts to Fort Greely's existing landfill. The adverse impacts of Alternative 2 on utilities are expected to be mitigated where necessary, and otherwise negligible when compared to the available capacities.

4.3.11.3 Alternative 3

Impacts to utilities under Alternative 3 would be the same as those described under Alternative 2 (negligible) because the demand for utilities would be the same under either action alternative.

4.3.12 Vegetation

4.3.12.1 No-Action Alternative

There would be no impacts to vegetation under the No Action Alternative.

4.3.12.2 Alternative 2

Under Alternative 2, the vegetation in the area of the proposed project footprint(s) would be crushed or removed and invasive plants could colonize bare soils that are exposed during the construction process. Although no federally designated threatened or endangered species are known to occur within the project area, several "rare" plant species area found on Fort Greely, and could be impacted if removed during construction. Alternative 2 would result in short-term and localized adverse impacts to vegetation. Approximately 6.41 acres of soil would be disturbed for the project footprint, which is a small area relative to the 100-acre parcel. Much of the project area vegetation has been previously disturbed by development and military activities. Considering the mitigation measures that would be implemented and the past disturbance to the area, the impacts to vegetation under Alternative 2 would be minor.

The removal of standing dead (burned) spruce trees could either impart an adverse effect (crushing of more vegetation through removal) or beneficial (vegetation, allow more vigorous growth of saplings); therefore, this proposed removal would not influence the rating of the vegetation under Alternative 2.

4.3.12.3 Alternative 3

Impacts to vegetation under Alternative 3 would be the same as those described under Alternative 2 (minor) because the area disturbed would be similar to that under Alternative 2 (approximately 5.69 acres under Alternative 3) and the soils have been previously impacted.

4.3.13 Visual Resources and Aesthetics

4.3.13.1 No-Action Alternative

There would be no impacts to visual resources and aesthetics under the No Action Alternative.

4.3.13.2 Alternative 2

Visual resources within Fort Greely could be affected from the construction of the proposed project if any building obscured an existing view shed. However, the buildings would be no more than 45 feet in height and the new construction would be similar to the existing military facilities. Due to the flat topography and the vegetation barriers from roadways, the visual sensitivity is very low (BMDO 2000). Public views are virtually nonexistent except for the occasional recreation users that may visit the areas. As mentioned under Section 4.3.12 (Vegetation), the removal of standing dead spruce trees could improve the view shed by promoting sapling growth. Any adverse impacts to visual resources and aesthetics under Alternative 2 would be very localized and temporary; and therefore negligible.

4.3.13.3 Alternative 3

Impacts to visual resources and aesthetics under Alternative 3 would be the same as those described under Alternative 2 (negligible) because the construction would be of a similar nature and also within an area of low visual sensitivity.

4.3.14 Water Resources

4.3.14.1 No-Action Alternative

There would be no impacts to water resources and aesthetics under the No Action Alternative.

4.3.14.2 Alternative 2

Surface Water

Construction and land clearing activities under Alternative 2 could result in a localized and temporary increase in sediment in surrounding surface waters, while construction and operations and maintenance could increase storm water discharges relative to existing storm water permits. Accidental spills of hazardous materials during construction could affect water resources. However, the characteristic relatively flat terrain and permeable soils in the project area would facilitate infiltration of surface water flow, and the spatial separation between the project area and the Delta River to the west and Jarvis Creek to the east (over 1.2 miles to either water body) would prevent the transportation of any sediment to these main surface water bodies. For these reasons, the adverse impacts to surface water from Alternative 2 would be barely perceptible and unmeasureable; therefore negligible.

Groundwater

The depth to groundwater on Fort Greely ranges from 175 feet to at least 300 feet below ground surface, and fluctuates in response to seasonal recharge (BMDO 2000). It is unlikely that any construction runoff or hazardous materials generated during construction or operation activities under Alternative 2 would percolate to the depth of the water table. Under Alternative 2, the project-related adverse impacts to groundwater are expected to be negligible, in that they would be barely perceptible and unmeasureable.

4.3.14.3 Alternative 3

Impacts to water resources under Alternative 3 would be the same as those described under Alternative 2 due to the proximity of the project areas to one another.

4.3.15 Wildlife

4.3.15.1 No-Action Alternative

There would be no impacts to wildlife under the No Action Alternative.

4.3.15.2 Alternative 2

Project activity (presence of humans) and noise (from heavy equipment) could disturb wildlife and cause animals to disperse from the project areas. Human activity already occurs in the proposed project area and an 8-foot tall chain link fence surrounds the Cantonment Area (and the 100-acre parcel). The fence impedes access to the area by large mammals such as moose and bear. However, birds and small mammals could access and utilize the project area for food sources and habitat. Although there are no federally listed threatened, endangered, or candidate wildlife in the project area, four State of Alaska species of special concern (the olive-sided flycatcher, gray-cheeked thrush, Townsend's warbler, and blackpoll warbler) could be found nesting in or around the project area. The Migratory Bird Treaty Act-related mitigation measures that prevent construction during the nesting season would be followed during the construction of this project. Because the project area vegetation and soils have been previously disturbed, the habitat is not pristine and is used intermittently by wildlife species. There is similar habitat surrounding the project area, and the habitat that would be impacted by Alternative 2 is not unique to the area. Due to the existing presence of human activity and the disturbed nature of the site, the expected impacts to area wildlife would be temporary and localized at most; and therefore negligible to minor. If animals are attracted to human garbage or are hand-fed, the impacts could be more minor than negligible in nature.

4.3.15.3 Alternative 3

Impacts to wildlife under Alternative 3 would be the same as those described under Alternative 2 (negligible to minor) due to the similar nature of the areas disturbed and the presence of similar species.

4.4 Cumulative Effects

Cumulative impacts were assessed by combining the potential environmental impacts of the alternatives with the impacts of projects that have occurred in the past, are currently occurring, or are proposed in the future within the Fort Greely Installation boundary.

The following past, present and reasonably foreseeable actions have been identified that may contribute direct or indirect impacts to the Fort Greely area:

- Impacts from past or present actions:
    - Construction, operation, and maintenance of TAPS
    - Construction and use of Richardson and Alaska highways
    - Delta Agricultural Projects I and II - The 1978 Delta Agricultural Project I was a 60,000-acre barley demonstration project and the 1982 Project (II) added acreage to the first. Success of the projects has been variable.
    - Various past Fort Greely construction projects - Include: the Munitions Storage Facility Cold Regions Test Center, Bolio Lake; Cold Regions Test Center Cold-Weather Automotive Test Complex Donnelly Training Area; and Installation of the Cantonment Area Fence, Fort Greely.
    - Military Activity - Fort Greely has been a military facility since June 1941, and a multitude of Army activity has occurred within the proposed project area. Trails, utilities, various cleared areas, and contaminated sites are located throughout the 100-acre parcel of the project area. Five contaminated sites, located within the 100 acres are included in the Army's IRP.
    - Development of the GMD GBI site at Fort Greely
    - Construction and operation of a Battle Area Complex and Combined Arms Collective Training Facility-located to the east of the project area across Jarvis Creek
    - Ongoing operations of existing Army activities –includes renovation projects, but not necessarily demolition or new construction.
    - Donnelly Flats Fire. The 1999 Donnelly Flats Fire was the most recent large wildfire that impacted the immediate area adjacent to the cantonment area. While there was little structural damage or loss from this fire, the fire changed the boreal forest from a more mature to an emerging one.
- Impacts from reasonably foreseeable future actions:
    - Fort Greely Development - The *Fort Greely Installation, Fort Greely Alaska EA* describes in detail the proposed future developments on Fort Greely as defined in *Fort Greely Summary Development Plan* (U.S. Army Alaska 2003). Within the Cantonment Area, the building repair and construction projects would have the potential to affect the environment through activities such as: removal of asbestos and lead-containing materials; disposal of building debris and hazardous

materials; trenching for utilities; installation of lighting, wastewater and sewer systems, buildings, parking lots, and fencing; repair or replacement of above ground storage tanks, underground storage tanks; excavation for foundations; contouring of construction sites; clearing of vegetation; and landscaping and planting of vegetation. Projects proposed for the Missile Defense Complex and the Allen Army Airfield area would involve activities similar to those described for the Cantonment Area.

- Pogo Mine project - The underground Pogo Gold Mine is located in the Goodpaster River Valley approximately 38 miles northeast of Delta Junction, Alaska. The project commenced in 2004. This project is expected to cause short term increases in Delta Junction population due to construction worker influx; increase public facility related development, commercial and industrial activities; increased access (via roads) to previously inaccessible areas. Pogo Mine would increase demand on the existing Interior Rail Belt Electrical Intertie (from Homer to Delta Junction).
- Alyeska Services, Inc. transfer of the power source for the TAPS pump station #9 from self generated gas turbine to connection with the existing rail bed power grid.
- The proposed Alaska Natural Gas Pipeline - The pipeline would likely be constructed adjacent to the existing 100-foot TAPS ROW, with route alternatives including: following the existing TAPS ROW south to Valdez or following the TAPS ROW until Delta Junction, after which the pipeline would follow the Alaska Highway into Canada. This project would enhance the local economy with the increase in jobs and revenue.
- Richardson Highway Improvements project – This project would widen the highway between milepost 261 (the location of the current main entrance to Fort Greely) and 265, in Delta Junction and improve access to Fort Greely and adjacent Army training areas. Planned improvements include resurfacing of the highway and the addition of 8-foot wide shoulders, left turn lanes for south-bound traffic at the main gate and mid-post gates, right turn deceleration lanes for the freight and test track oval area and at the Army training area access point (to accommodate the flat-bed delivery of Stryker vehicles from Fort Wainwright to the training areas), and 4-foot wide shoulders in road sections with turning lanes. ADOT expects to begin construction in 2008. This project would provide increased ease of access to Fort Greely.
- Alaska Railroad Extension - The Alaska Railroad plans to extend 80 miles of rail tracks from North Pole to Fort Greely to support MDA's mission at Fort Greely. An environmental impact analysis is underway and is estimated to be completed in 2006. This project would increase access to Fort Greely, and could bring about an increase in the local economy.

4.4.1 Impacts by Resource

Past actions within the project area such as previous Army activities, construction, hazardous chemical spills, and the 1999 Donnelly Flats Fire combined with future foreseeable development activities in Fort Greely have and would have impacts to the resources within the project area. Given the localized nature of the proposed EUL project, the small amount of land that would be disturbed, and the existing development in the surrounding area, it is expected that neither of the

action alternatives would contribute more than a negligible (barely perceptible and immeasurable) incremental cumulative impact to any of the resources selected for detailed analysis, with the exception of electrical utilities, described below. There would be no incremental cumulative impacts from the No Action Alternative.

Electricity in the Delta Junction area is currently provided by the GVEA. There is a concern that power demand may outpace power supply in future years given additional growth in the area. The Strategic Missile Defense System, Pogo Gold Mine, and TAPS Pump Station #9 alone are expected to increase system power demand by over 30 MW (U.S. Army Corps of Engineers 2006). While the proposed project would utilize existing power generated by the installation, there is the probability of an indirect increase in electrical demand on Fort Greely through any increase in area population. The construction of the proposed Fort Greely EUL Project under either action alternative in addition to the past, present, and reasonably foreseeable future actions could have regional (moderate) and long term (major), yet unnoticeable (minor) incremental impacts, and therefore, moderate overall adverse cumulative impact on area electrical utilities.

4.5 Adverse Environmental Effects That Cannot be Avoided

In general, most known adverse effects resulting from implementation of the Proposed Action would be mitigated through project planning and design measures, consultation with appropriate agencies, and the use of BMPs. Therefore, most potential adverse effects would be avoided, and those that could not be avoided would not result in a significant impact to the environment. Adverse environmental effects that cannot be avoided as a result of the Proposed Action would include the release of minimal amounts of pollutants into the atmosphere; minor impacts on land use, soils, transportation, utilities, and vegetation; and minor, positive impacts on socioeconomics.

4.6 Conflicts with Federal, State, and Local Land Use Plans, Policies, and Controls for the Area Concerned

There are no local zoning or land use policies for Fort Greely. There are also no state zoning or land use plans or guidelines for the area. Therefore, existing land uses or any land use change under the Proposed Action do not conflict with any federal, state, or local land use plans or policies.

4.7 Energy Requirements and Conservation Potential

Except as noted in Section 4.3.1.1 for electricity, all other anticipated energy requirements of the proposed activities would be well within the energy supply capacity at Fort Greely and those that would not would be mitigated. Energy requirements would be subject to any established energy conservation practices at each facility.

4.8 Irreversible or Irretrievable Commitment of Resources

Irreversible or irretrievable resource commitments are related to the use of nonrenewable resources (e.g., energy and minerals) and the effects that the uses of these resources would have on future generations. Irreversible impacts are those that may result primarily from the use or destruction of a specific resource that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action. Most impacts of the Proposed Action on the resources discussed are negligible or short-term and temporary (minor).

The amount of materials required for any activities related to the Proposed Action and energy used during the project would be negiglible compared to the amount available. Although the

proposed activities would result in some irreversible commitment of resources such as diesel fuel and various building materials for facility construction, none of these activities would be expected to significantly decrease the availability of the resources. Impacts to cultural resources are not expected and would not result in an irretrievable commitment of resources.

4.9 Relationship Between Short-Term Use of the Human Environment and the Maintenance and Enhancement of Long-Term Productivity

Proposed activities would take advantage of existing facilities and infrastructure. The proposed use of existing facilities or locations would not alter the uses of the sites. Therefore, the Proposed Action does not eliminate any options for future use of the environment for the locations under consideration.

4.10 Natural or Depletable Resource Requirements and Conservation Potential

Other than various construction materials and fuels, the Proposed Action would require no significant natural or depletable resources.

4.11 Federal Actions to Address Protection of Children From Environmental Health Risks and Safety Risks

This EA has not identified any environmental health and safety risks that may disproportionately affect children, in compliance with Executive Order 13045, as amended by Executive Order 13229.

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